Figure 1.

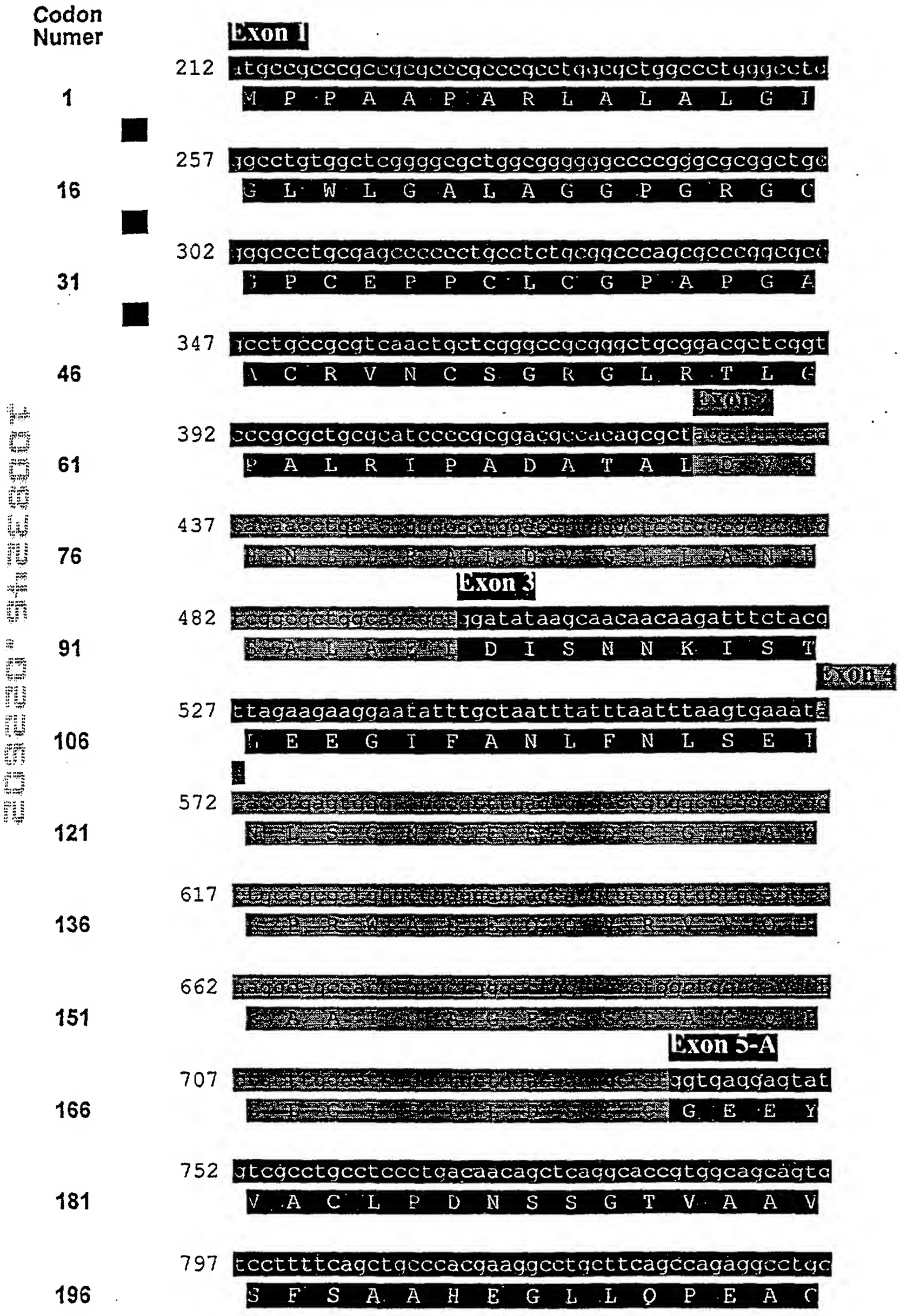
Codon Numer
Exon 1
212
1
257
16
302
31
347
46
Exon 2
392
61
437
76
Exon 3
482
91
Exon 4
527
106
572
121
617
136
662
151
Exon 5-A
707
166
752
181
797
196

FIG 1 Cont.

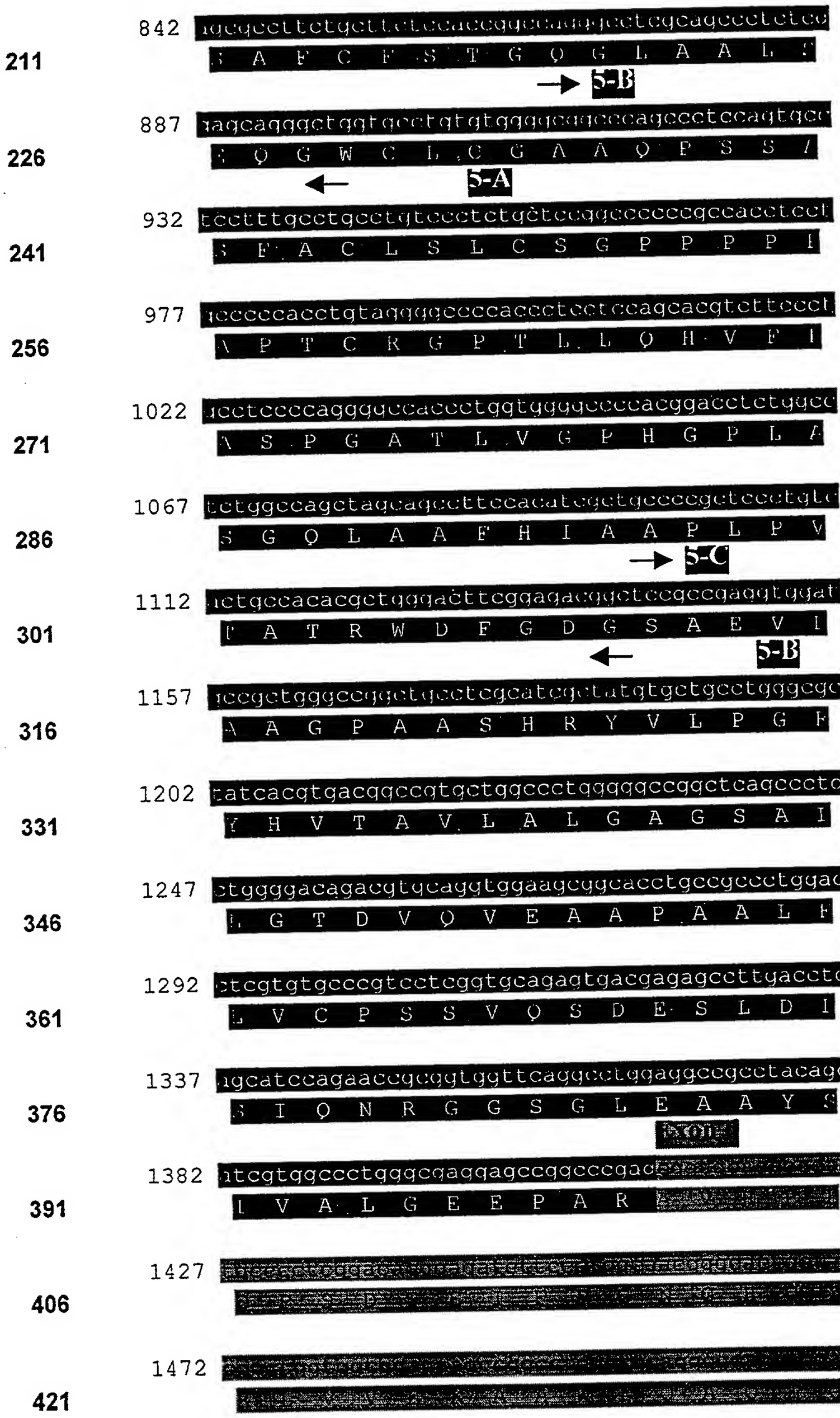
842
211
S A F C F S T G Q G L A A L
5-B
887
226
G Q G W C L C G A A Q P S S
5-A
932
241
S F A C L S L C S G P P P P
977
256
A P T C R G P T L L Q H V F
1022
271
A S P G A T L V G P H G P L
1067
286
S G Q L A A F H I A A P L P V
5-C
1112
301
P A T R W D F G D G S A E V
5-B
1157
316
A A G P A A S H R Y V L P G
1202
331
Y H V T A V L A L G A G S A
1247
346
L G T D V Q V E A A P A A L
1292
361
L V C P S S V Q S D E S L D
1337
376
S I Q N R G G S G L E A A Y
1382
391
L V A L G E E P A R
1427
406
1472
421

FIG 1 Cont.

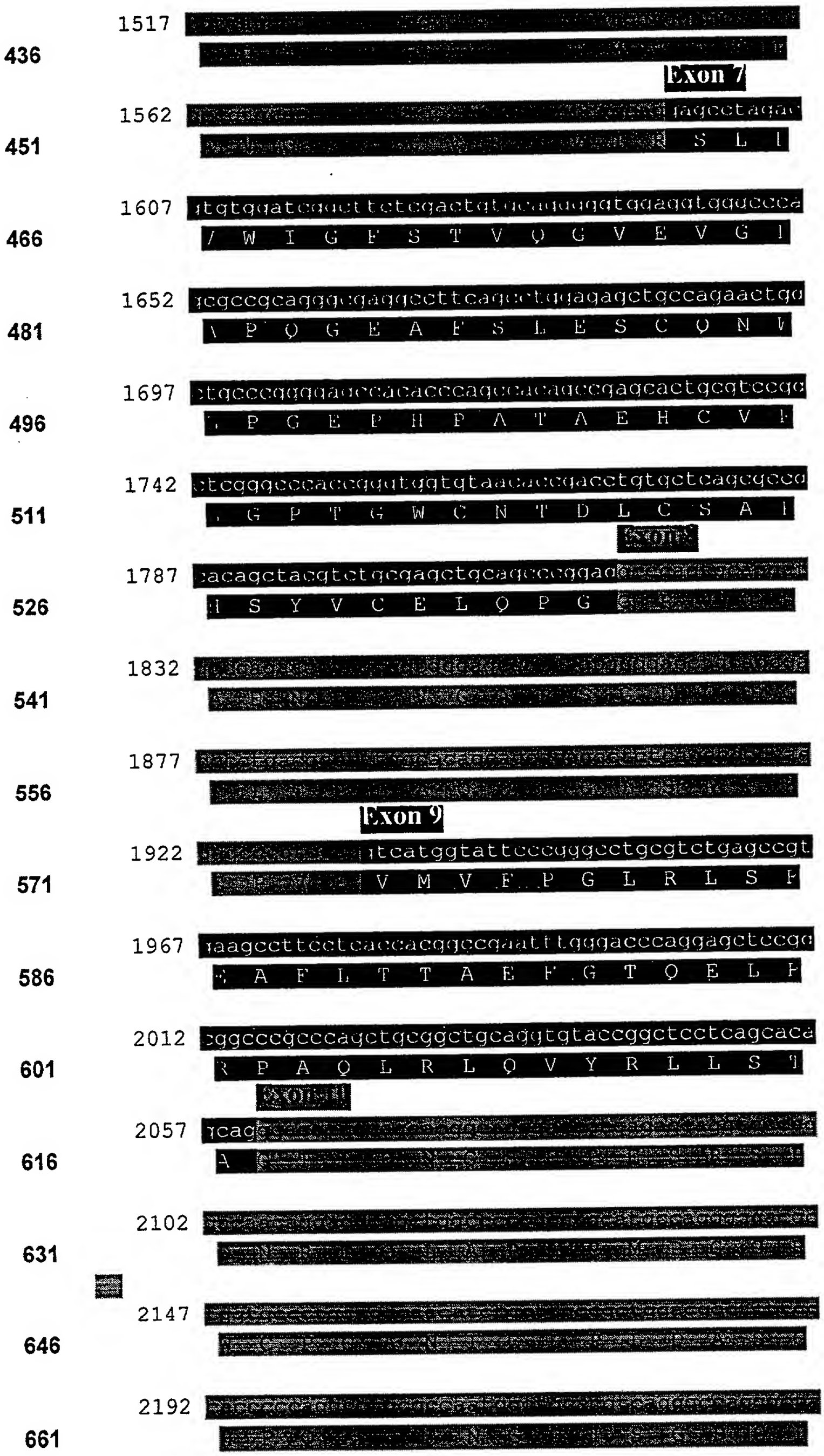
1517
436
Exon 7
1562
451
S L I
1607
466
W I G F S T V Q G V E V G I
1652
481
P Q G E A F S L E S C Q N V
1697
496
P G E P H P A T A E H C V P
1742
511
G P T G W C N T D L C S A I
Exon 8
1787
526
S Y V C E L Q P G
1832
541
1877
556
Exon 9
1922
571
V M V F P G L R L S P
1967
586
A F L T T A E F G T Q E L P
2012
601
R P A Q L R L Q V Y R L L S
Exon 10
2057
616
2102
631
2147
646
2192
661

FIG 1 Cont.

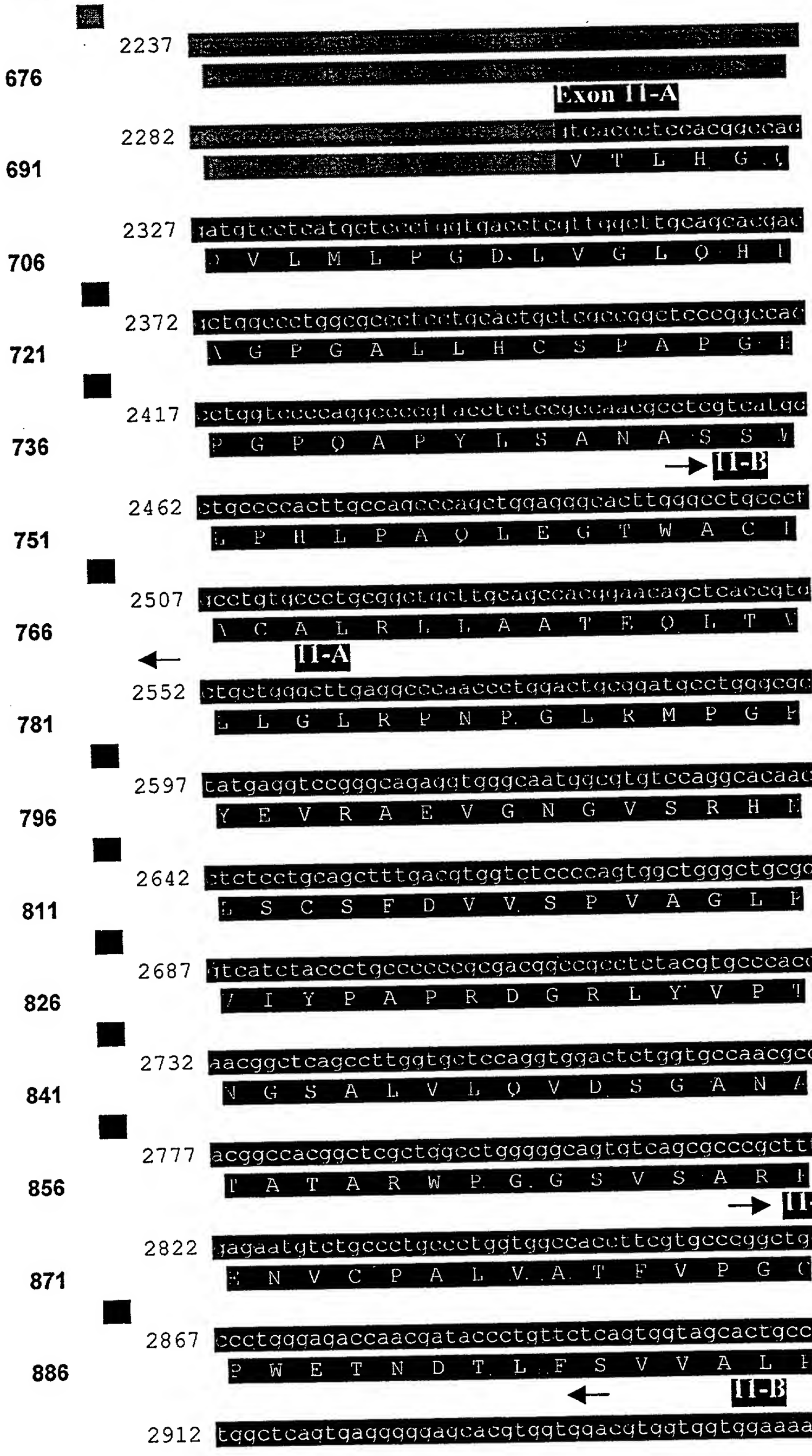
2237
676
Exon II-A
2282
691
V T L H G
2327
706
V L M L P G D L V G L Q H
2372
721
G P G A L L H C S P A P G
2417
736
P G P Q A P Y L S A N A S S
II-B
2462
751
L P H L P A Q L E G T W A C
2507
766
C A L R L L A A T E Q L T
II-A
2552
781
L L G L R P N P G L R M P G
2597
796
Y E V R A E V G N G V S R H
2642
811
L S C S F D V V S P V A G L
2687
826
I Y P A P R D G R L Y V P
2732
841
N G S A L V L Q V D S G A N
2777
856
I A T A R W P G G S V S A R
II-C
2822
871
N V C P A L V A T F V P G
2867
886
P W E T N D T L F S V V A L
II-B
2912

FIG 1 Cont.

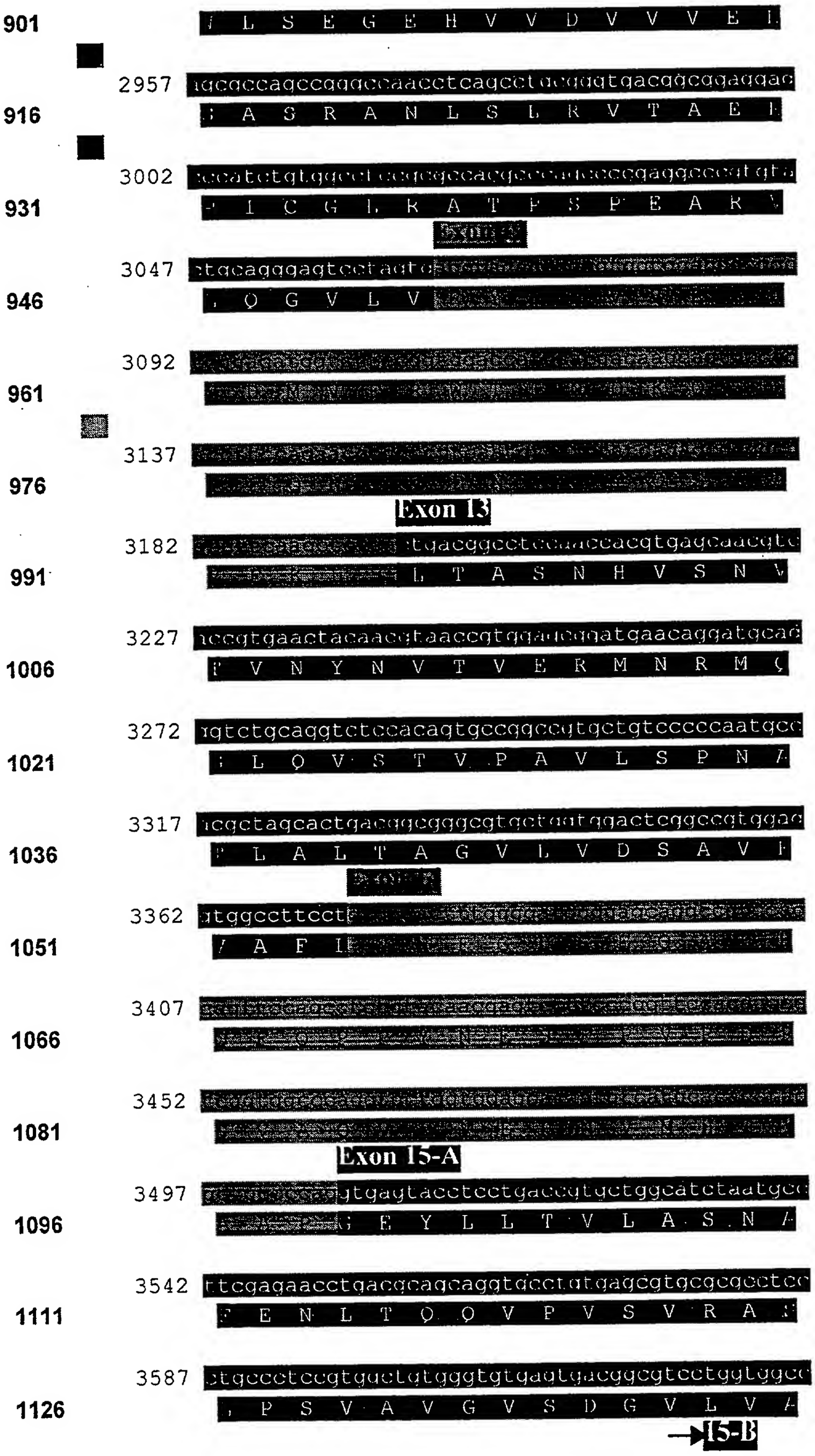

FIG 1 Cont.

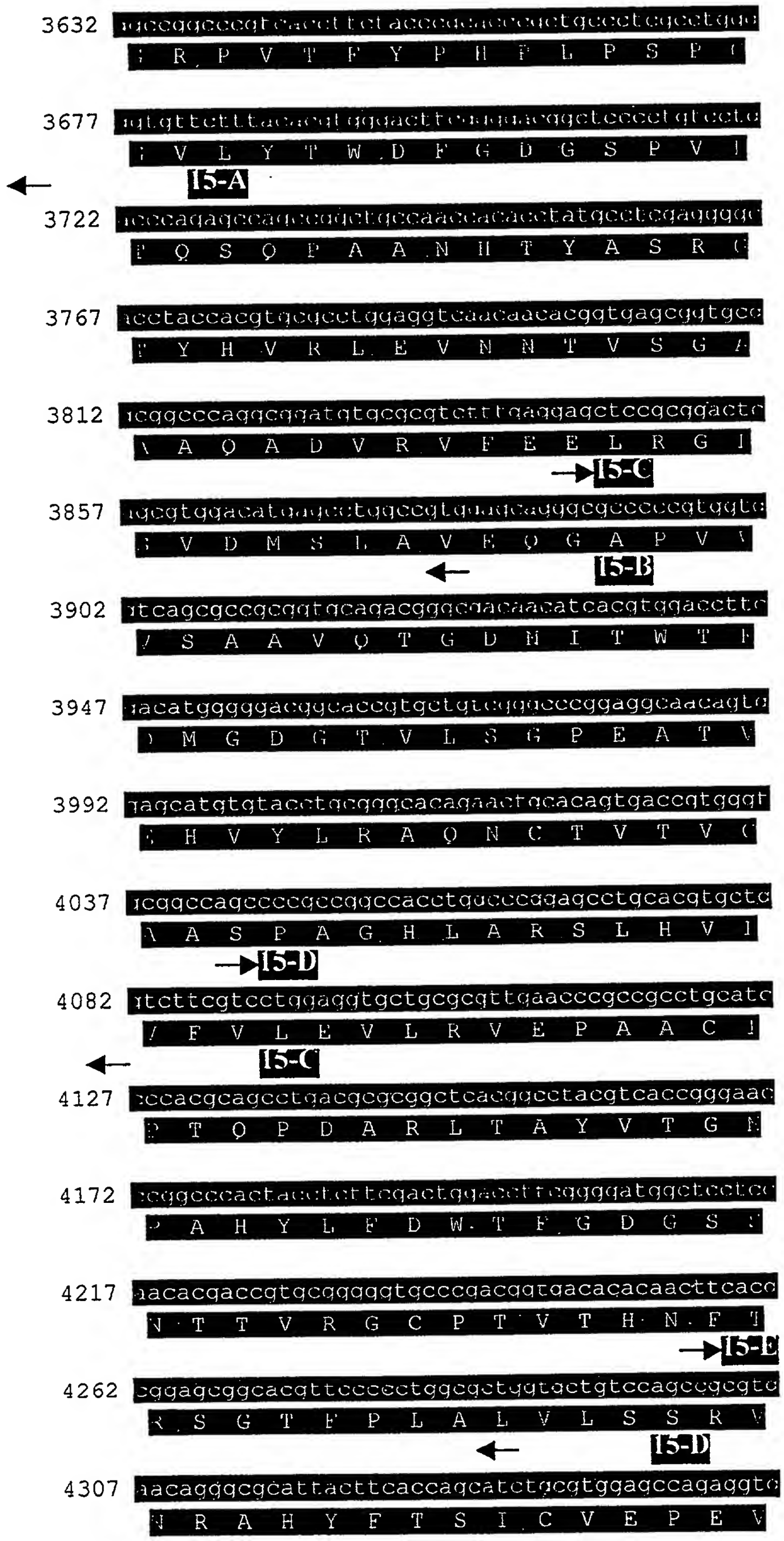
3632
1141
3677
1156
I5-A
3722
1171
3767
1186
3812
1201
I5-C
3857
1216
I5-B
3902
1231
3947
1246
3992
1261
4037
1276
I5-D
4082
1291
I5-C
4127
1306
4172
1321
4217
1336
I5-E
4262
1351
I5-D
4307
1366

FIG 1 Cont.

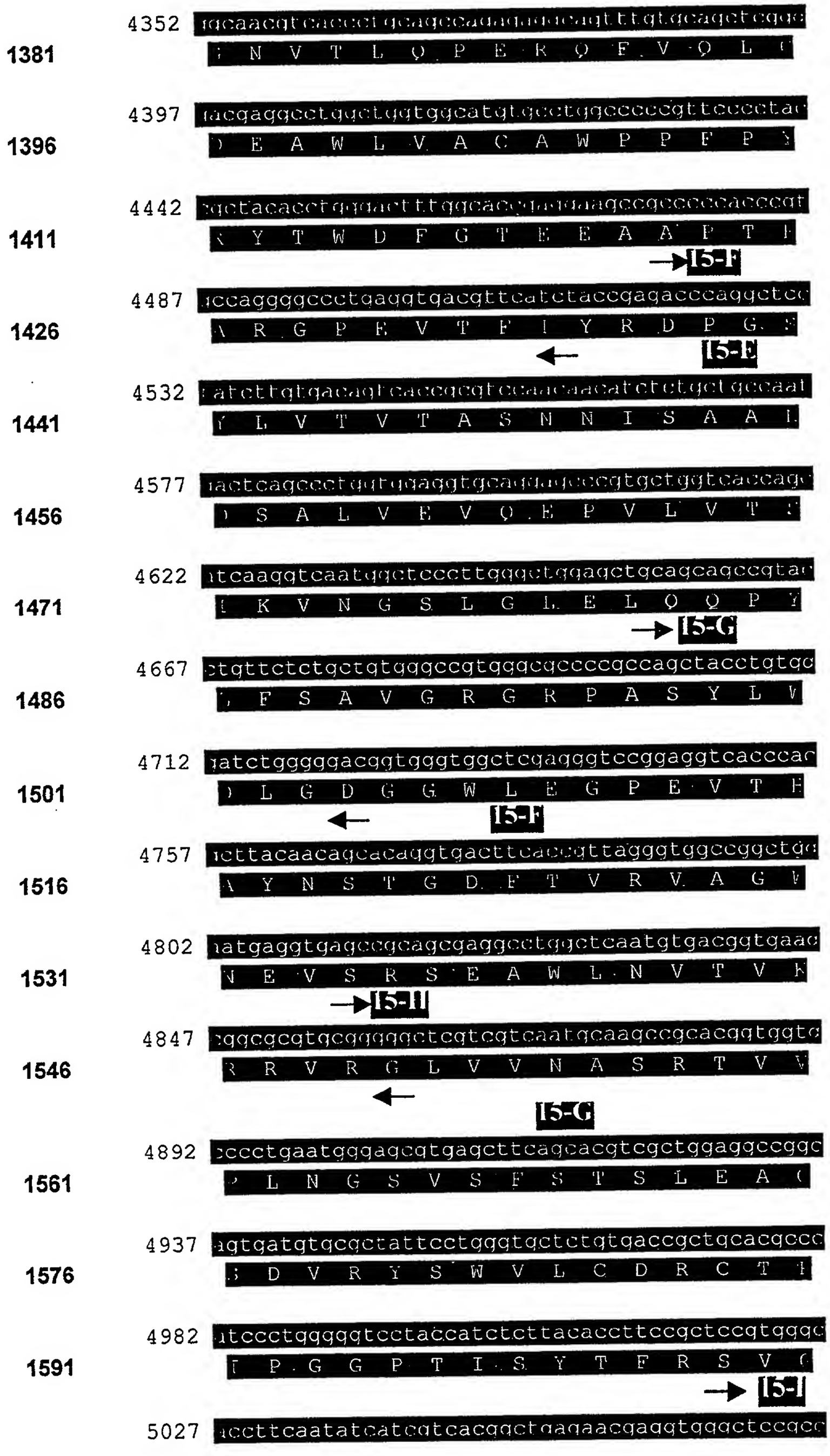
4352
1381
4397
1396
4442
1411
I5-F
4487
1426
4532
1441
4577
1456
4622
1471
I5-G
4667
1486
4712
1501
I5-F
4757
1516
4802
1531
I5-H
4847
1546
I5-G
4892
1561
4937
1576
4982
1591
I5-I

FIG 1 Cont.

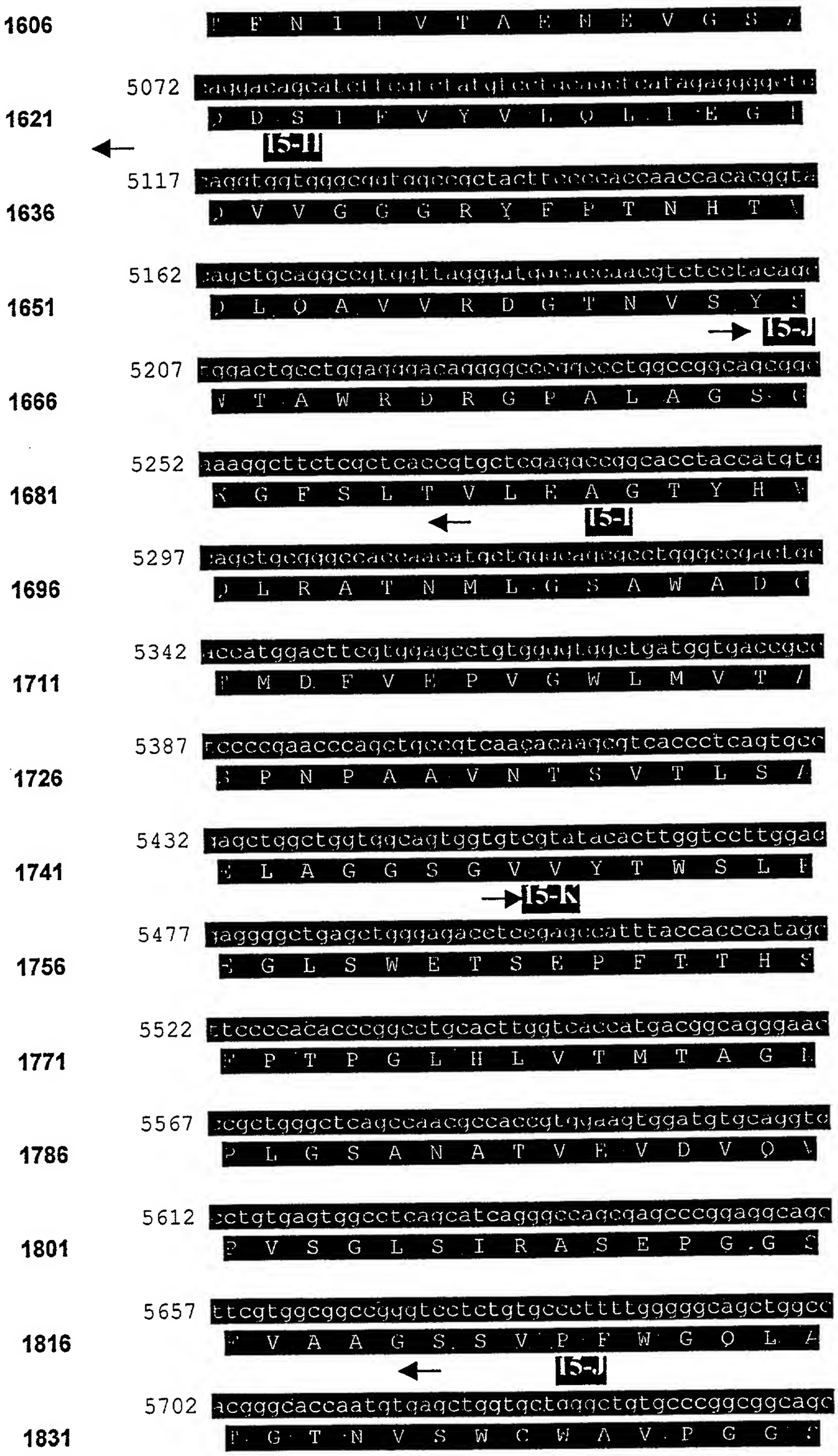
1606
F E N I I V T A E N E V G S
5072
1621
D S I F V Y V L Q L I E G I
I5-I
5117
1636
V V G G G R Y F P T N H T
5162
1651
L Q A V V R D G T N V S Y
I5-J
5207
1666
T A W R D R G P A L A G S
5252
1681
K G F S L T V L E A G T Y H
I5-I
5297
1696
L R A T N M L G S A W A D
5342
1711
M D F V E P V G W L M V T
5387
1726
P N P A A V N T S V T L S
5432
1741
L A G G S G V V Y T W S L
I5-K
5477
1756
G L S W E T S E P F T T H
5522
1771
P T P G L H L V T M T A G
5567
1786
L G S A N A T V E V D V Q
5612
1801
V S G L S I R A S E P G G
5657
1816
V A A G S S V P F W G Q L
I5-J
5702
1831
G T N V S W C W A V P G G

FIG 1 Cont.

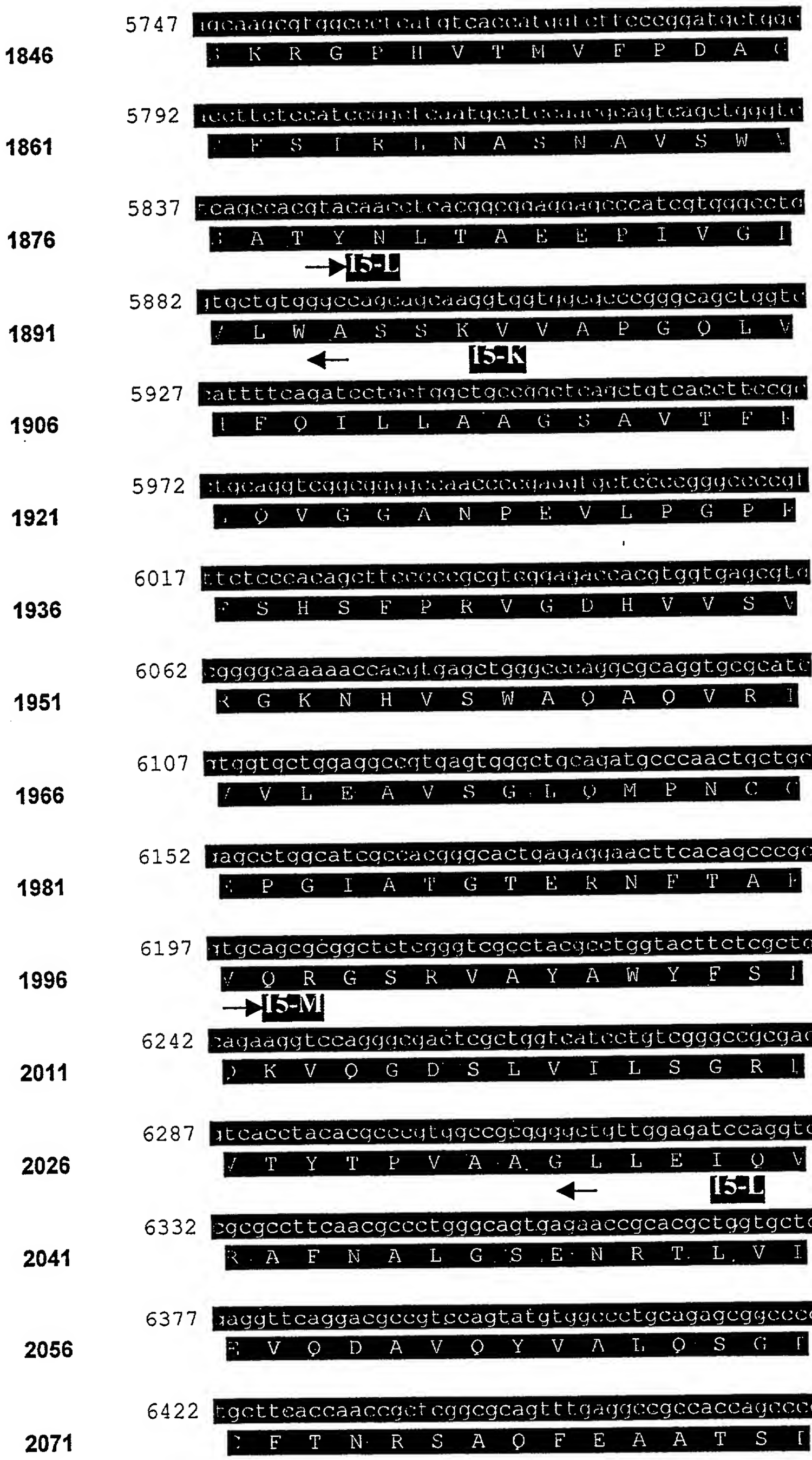
5747
1846
5792
1861
5837
1876
I5-L
5882
1891
I5-K
5927
1906
5972
1921
6017
1936
6062
1951
6107
1966
6152
1981
6197
1996
I5-M
6242
2011
6287
2026
I5-L
6332
2041
6377
2056
6422
2071

FIG 1 Cont.

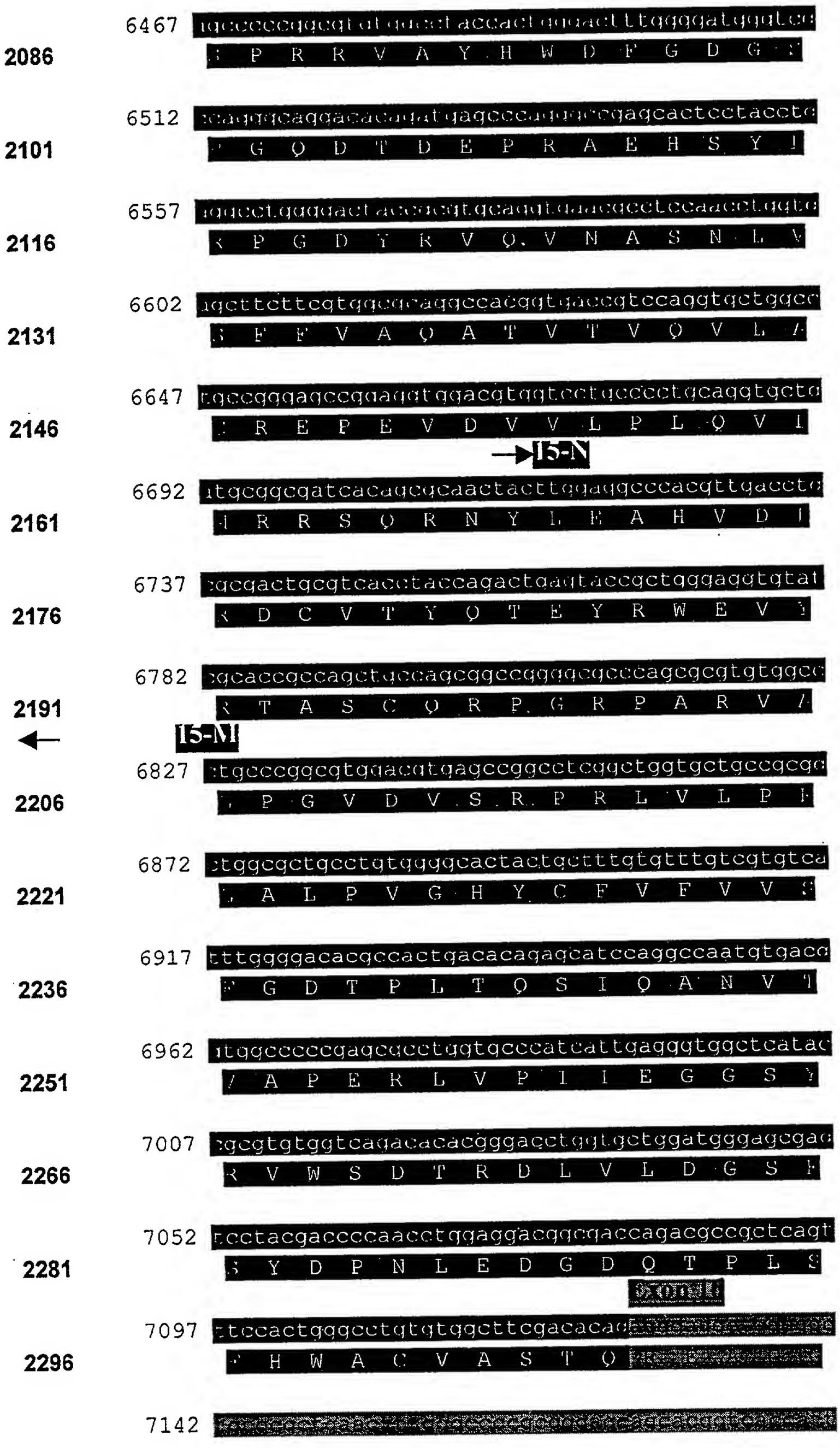
6467
2086
6512
2101
6557
2116
6602
2131
6647
2146
I5-N
6692
2161
6737
2176
6782
2191
I5-M
6827
2206
6872
2221
6917
2236
6962
2251
7007
2266
7052
2281
7097
2296
7142

FIG 1 Cont.

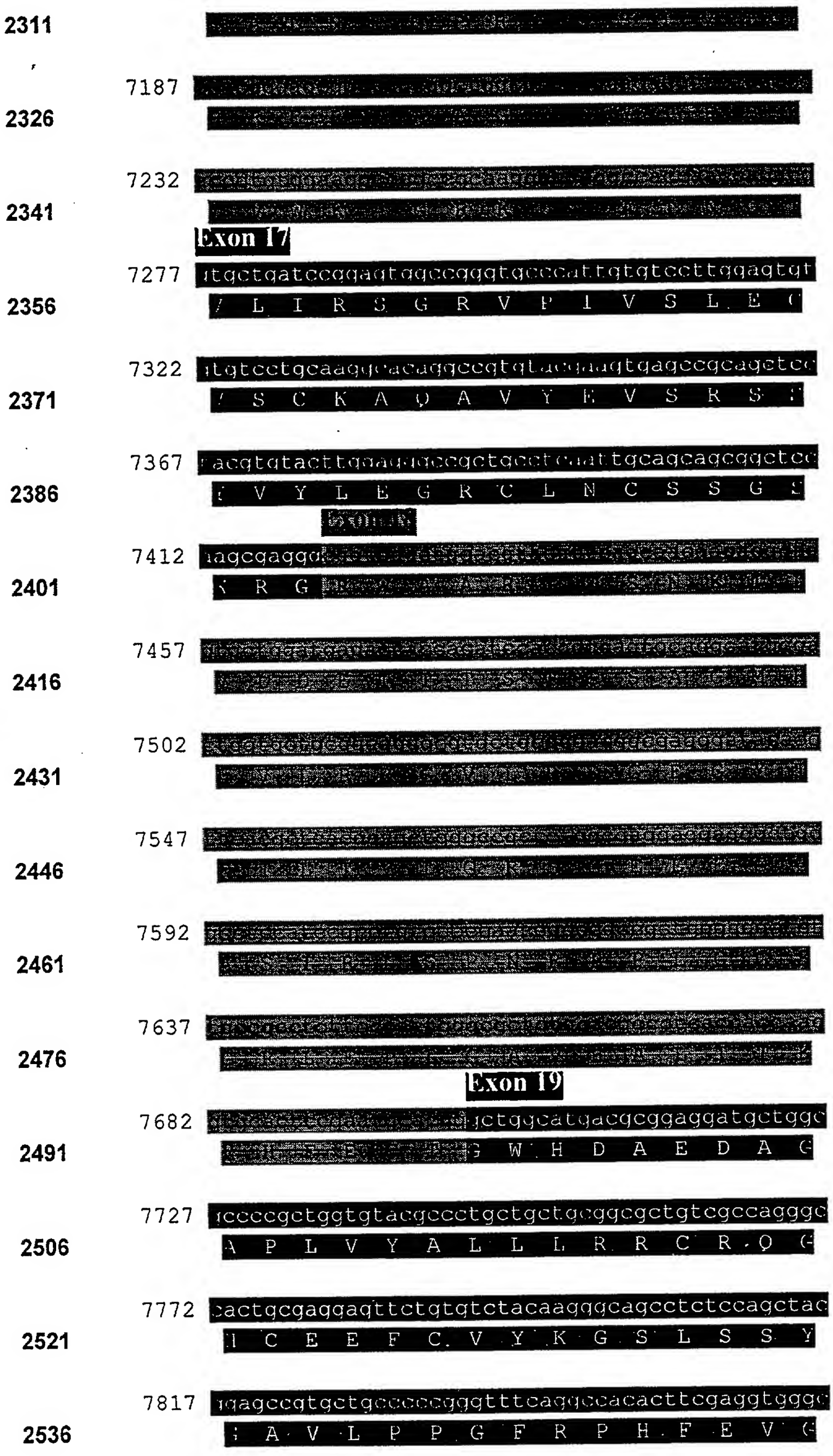
2311
7187
2326
7232
2341
Exon 17
7277
2356
7322
2371
7367
2386
7412
2401
7457
2416
7502
2431
7547
2446
7592
2461
7637
2476
Exon 19
7682
2491
7727
2506
7772
2521
7817
2536

FIG 1 Cont.

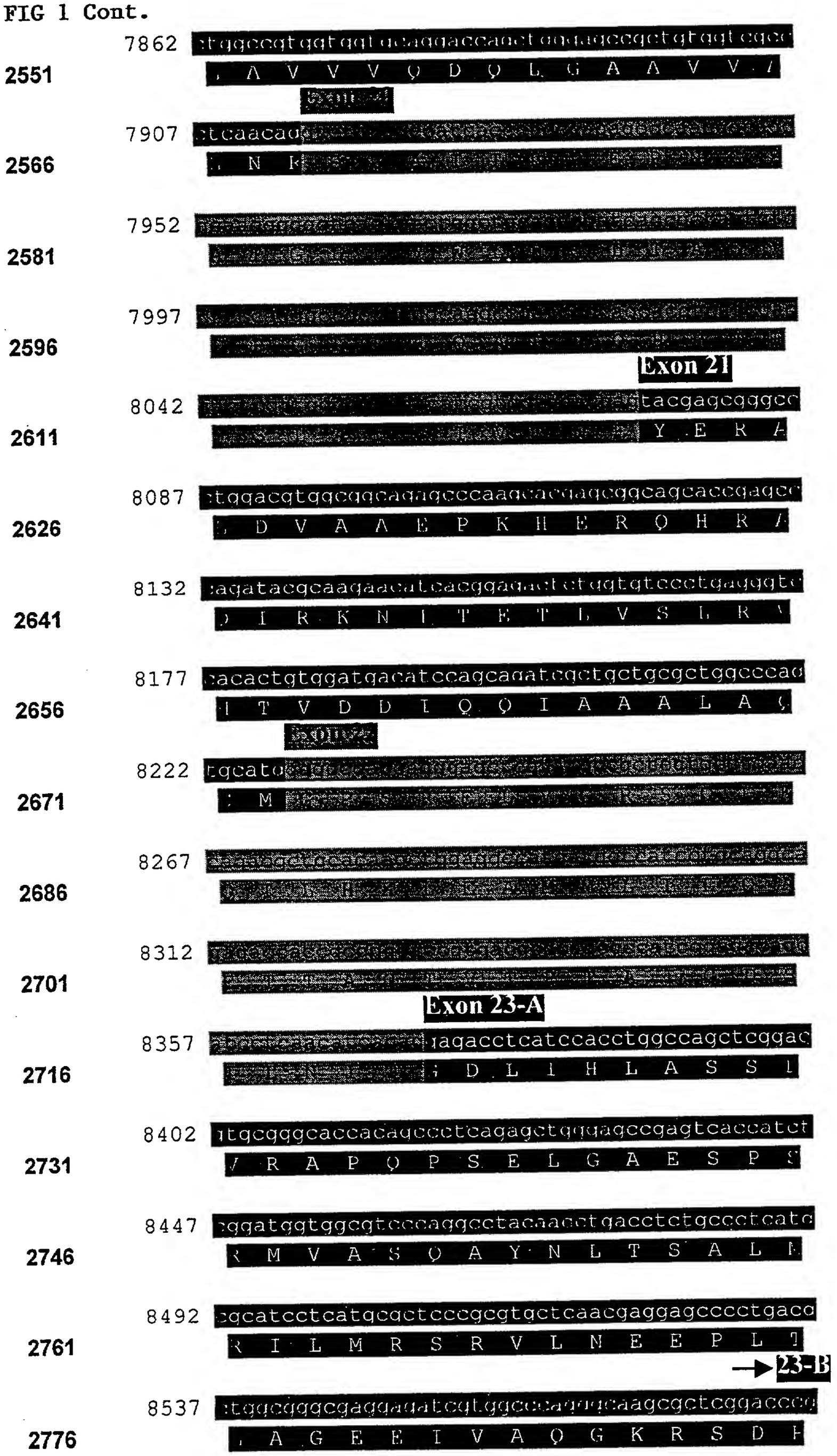
7862
2551
7907
2566
7952
2581
7997
2596
Exon 21
8042
2611
8087
2626
8132
2641
8177
2656
8222
2671
8267
2686
8312
2701
Exon 23-A
8357
2716
8402
2731
8447
2746
8492
2761
23-B
8537
2776

FIG 1 Cont.

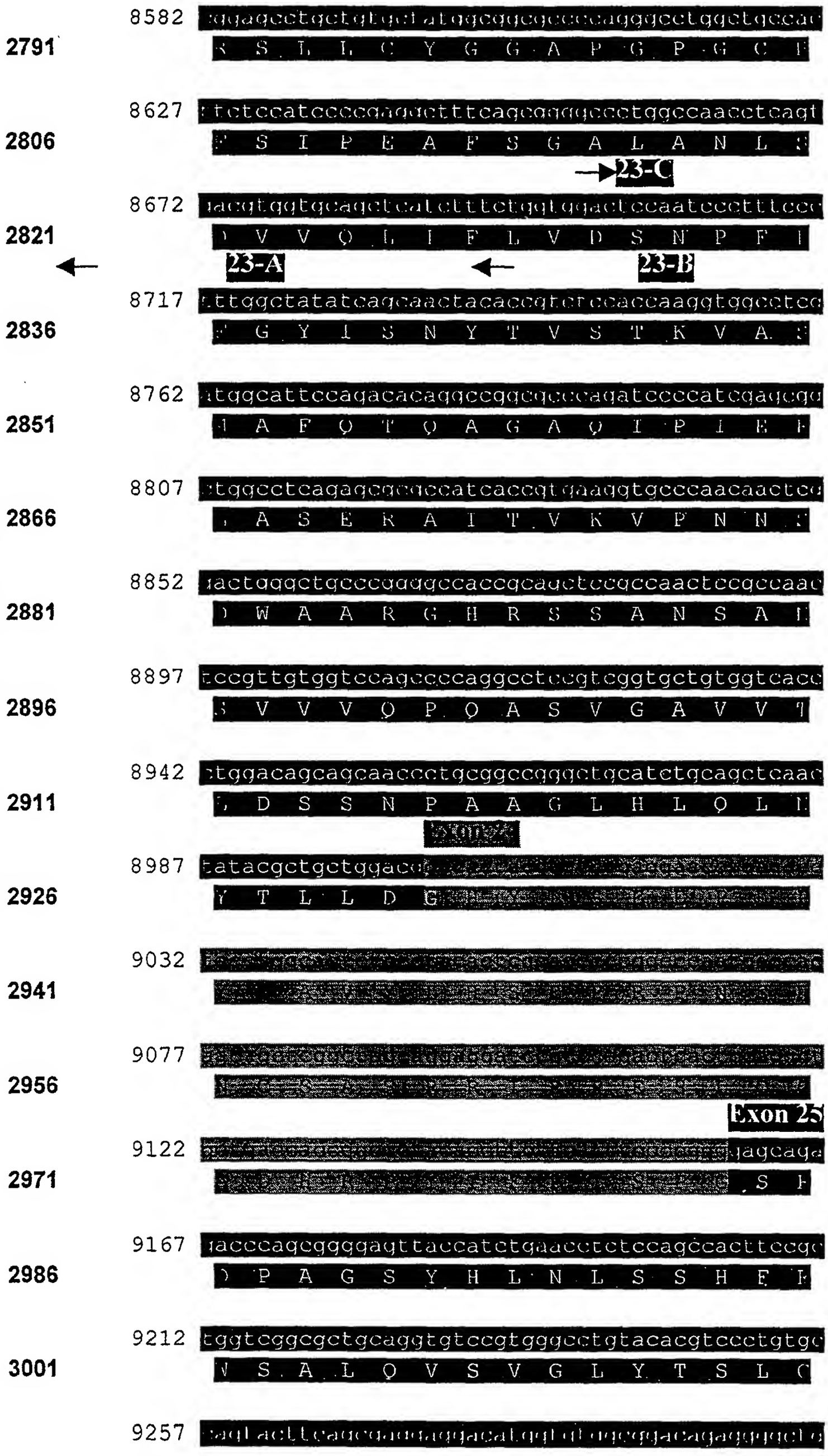
8582
2791
S S L L C Y G G A P G P G C F
8627
2806
P S I P E A F S G A L A N L S
23-C
8672
2821
V V Q L I F L V D S N P F I
23-A
23-B
8717
2836
G Y I S N Y T V S T K V A S
8762
2851
A F Q T Q A G A Q I P I E K
8807
2866
A S E K A I T V K V P N N S
8852
2881
W A A R G H R S S A N S A N
8897
2896
V V V Q P Q A S V G A V V Q
8942
2911
D S S N P A A G L H L Q L N
8987
2926
Y T L L D G
9032
2941
9077
2956
Exon 25
9122
2971
S P
9167
2986
P A G S Y H L N L S S H F K
9212
3001
S A L Q V S V G L Y T S L C

FIG 1 Cont.

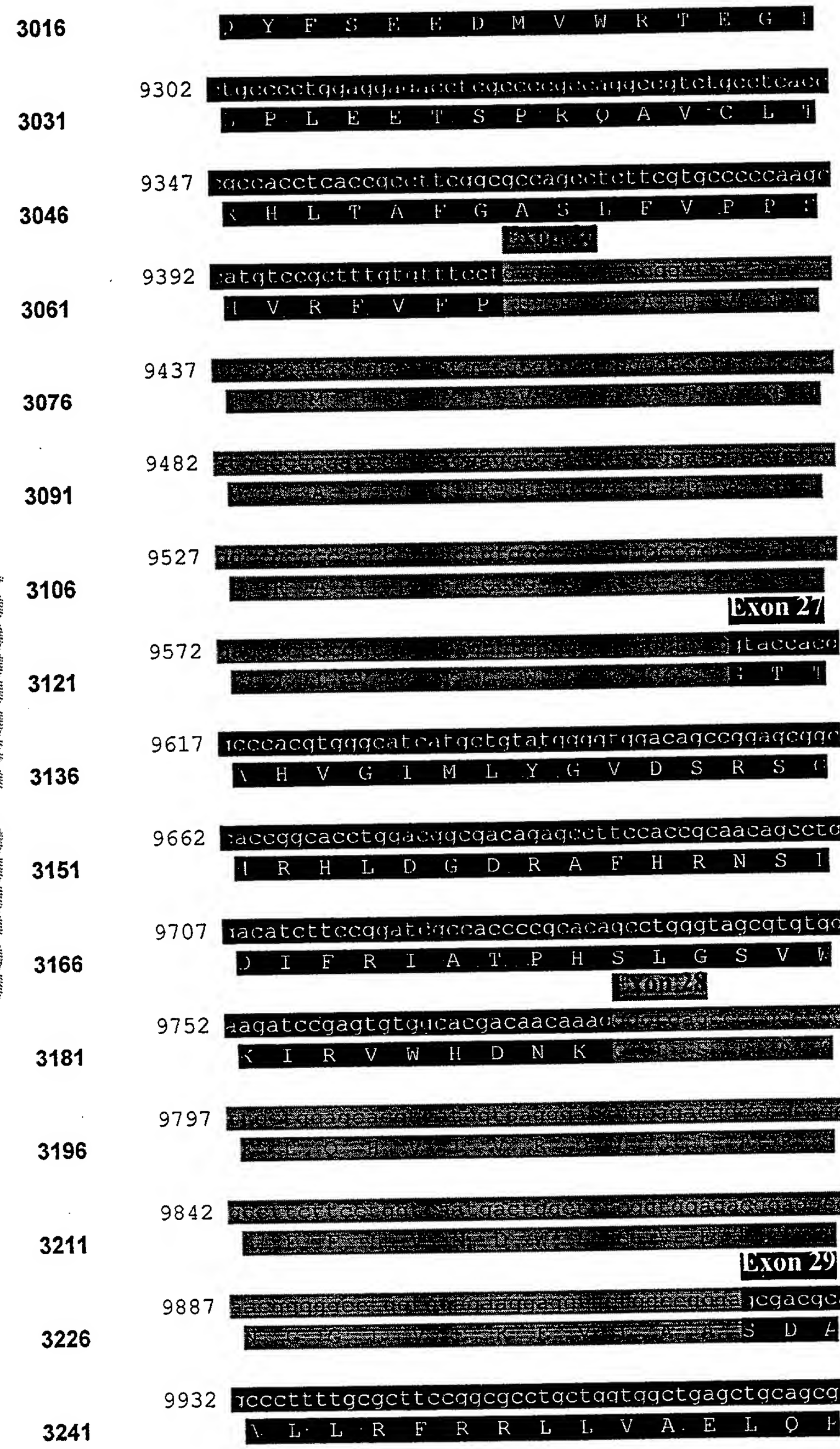
3016
Y F S E E D M V W R T E G I
9302
3031
P L E E T S P R Q A V C L T
9347
3046
H L T A F G A S L F V P P S
9392
3061
I V R F V F P
9437
3076
9482
3091
9527
3106
Exon 27
9572
3121
9617
3136
H V G I M L Y G V D S R S G
9662
3151
I R H L D G D R A F H R N S I
9707
3166
D I F R I A T P H S L G S V W
Exon 28
9752
3181
K I R V W H D N K
9797
3196
9842
3211
Exon 29
9887
3226
S D A
9932
3241
L L R F R R L L V A E L Q P

FIG 1 Cont.

9977
3256
10022
3271
10067
3286
10112
3301
10157
3316
10202
3331
Exon 31
10247
3346
10292
3361
Exon 32
10337
3376
10382
3391
Exon 33
10427
3406
10472
3421
10517
3436
10562
3451
10607
3466
10652
3481

FIG 1 Cont.

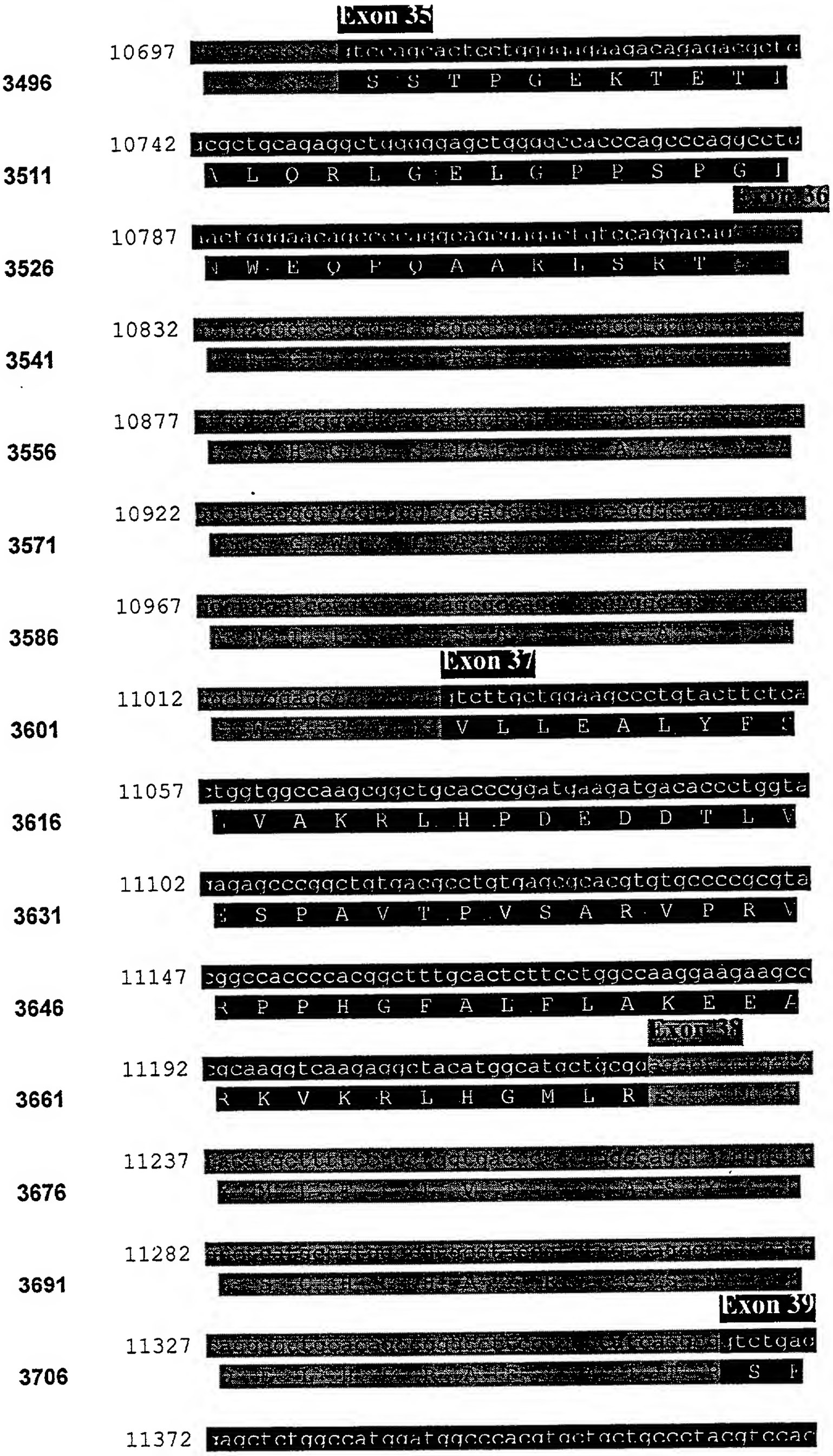
Exon 35
10697
3496
S S T P G E K T E T
10742
3511
L Q R L G E L G P P S P G
Exon 36
10787
3526
W E Q P Q A A R L S R T
10832
3541
10877
3556
10922
3571
10967
3586
Exon 37
11012
3601
V L L E A L Y F
11057
3616
V A K R L H P D E D D T L V
11102
3631
S P A V T P V S A R V P R V
11147
3646
R P P H G F A L F L A K E E A
Exon 38
11192
3661
R K V K R L H G M L R
11237
3676
11282
3691
Exon 39
11327
3706
S P
11372

FIG 1 Cont.

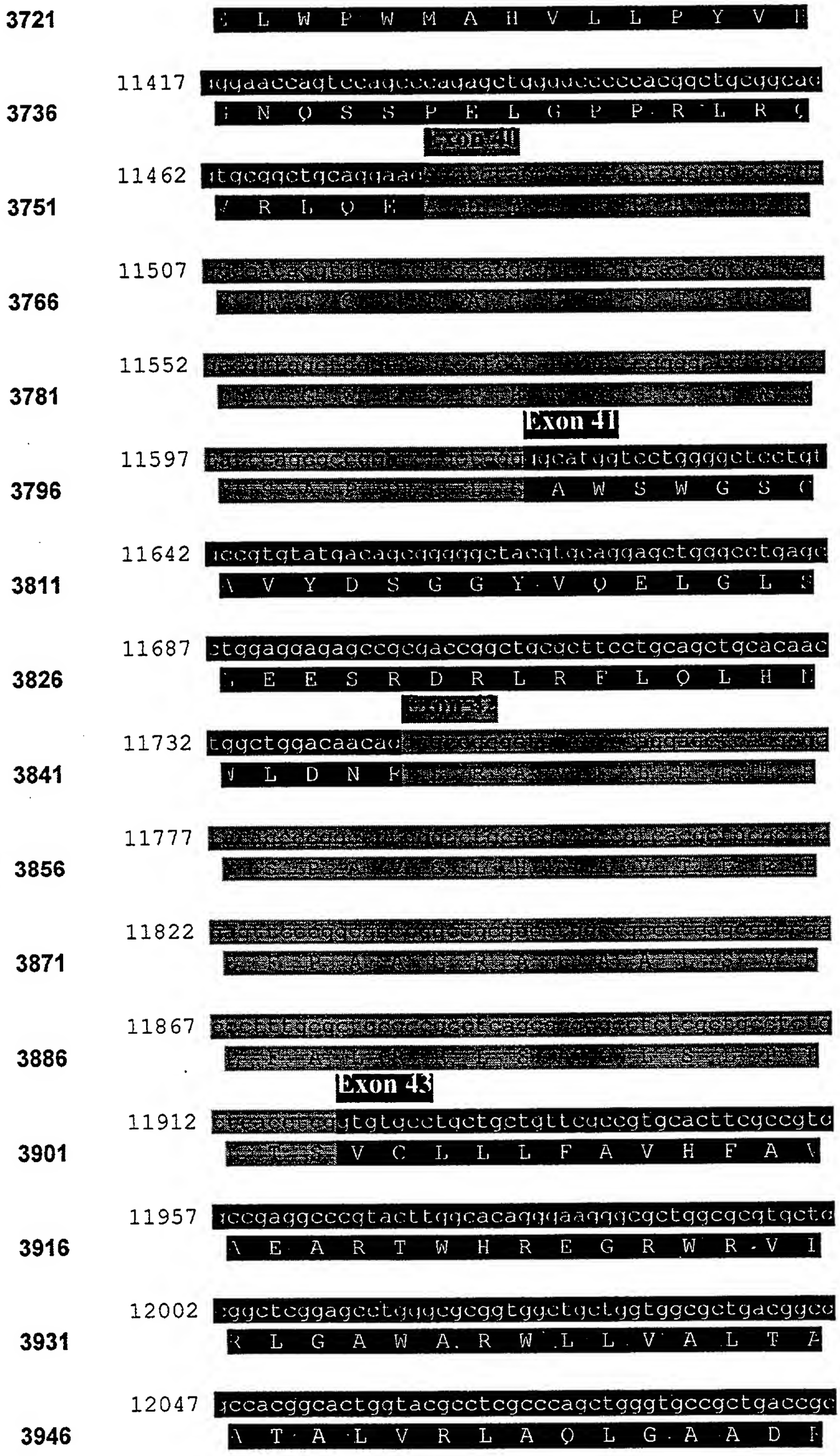
3721
E L W P W M A H V L L P Y V I
11417
gaaccagtccagcccagagctgggcccccacggctgcggcag
3736
E N Q S S P E L G P P R L R Q
Exon 41
11462
tgcggctgcaggaac
3751
V R L Q E
11507
3766
11552
3781
Exon 41
11597
tgcatggtcctggggctcctgt
3796
A W S W G S C
11642
ccgtgtatgacagcgggggctacgtgcaggagctgggcctgagc
3811
A V Y D S G G Y V Q E L G L S
11687
ctggaggagagccgcgaccggctacgcttcctgcagctgcacaac
3826
L E E S R D R L R F L Q L H N
11732
tggctggacaacac
3841
V L D N R
11777
3856
11822
3871
11867
3886
Exon 43
11912
gtgtgcctgctgctgttcgccgtgcacttcgccgtc
3901
A V C L L L F A V H F A V
11957
ccgaggcccgtacttggcacagggaagggcgctggcgcgtgctg
3916
A E A R T W H R E G R W R V I
12002
ggctcggagcctgggcgcggtggctgctggtggcgctgacggcc
3931
A R L G A W A R W L L V A L T A
12047
gccacggcactggtacgcctcgcccagctgggtgccgctgaccgc
3946
A T A L V R L A Q L G A A D R

FIG 1 Cont.

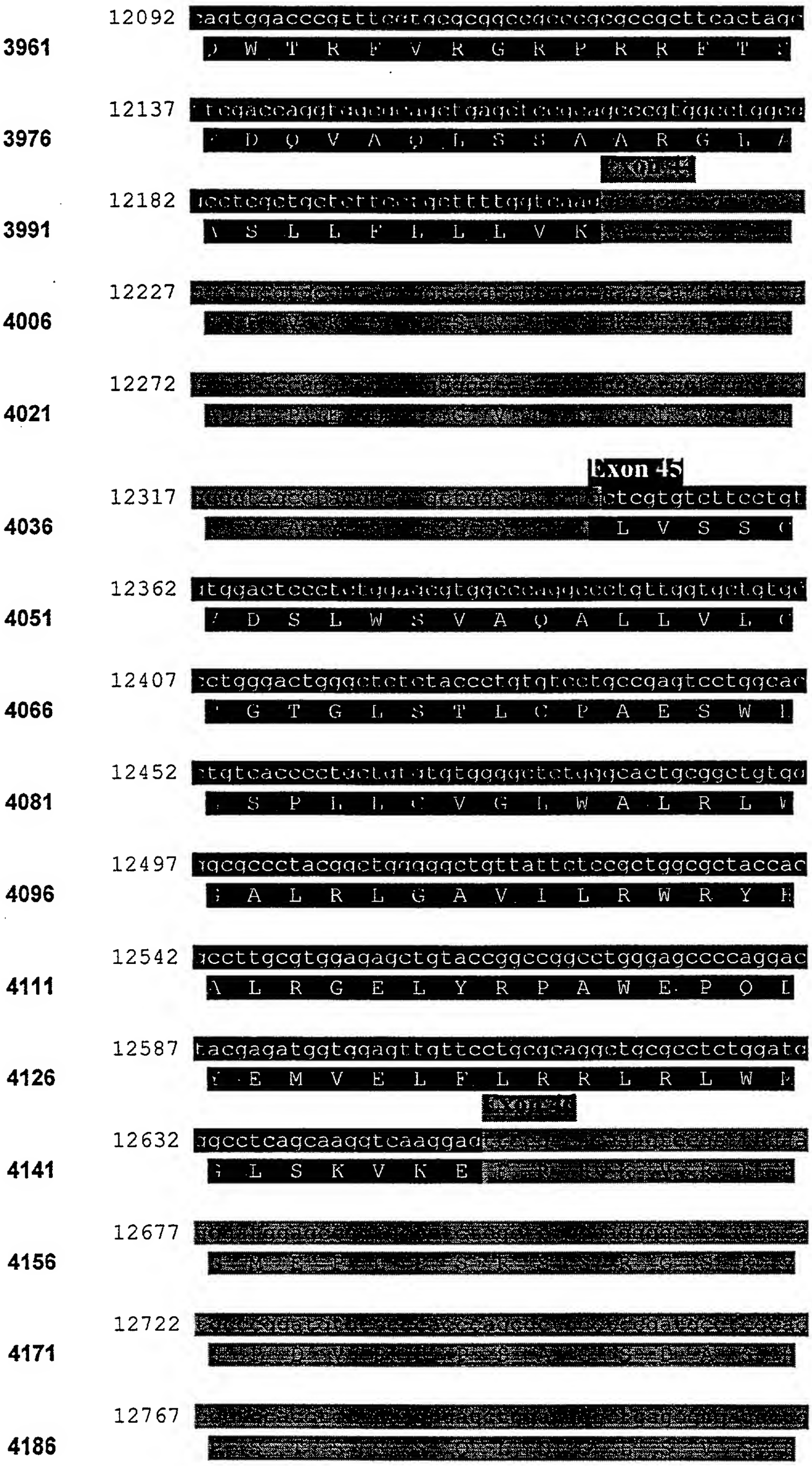
12092
3961
12137
3976
12182
3991
12227
4006
12272
4021
Exon 45
12317
4036
12362
4051
12407
4066
12452
4081
12497
4096
12542
4111
12587
4126
12632
4141
12677
4156
12722
4171
12767
4186

FIG 1 Cont.

12812
4201
12857
4216
12902
4231
12947
4246
12992
4261
13037
4276
13082
13120
4291

FIG 2

Exon 1—Homolog 1

```
Query: 3844  ccgcggacgccacagcgctgtgagtagcgggcccagcggcacccgggagaggccgcggga 3903
             ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Sbjct: 16586 ccgcggacgccacagcgctgtgagtagcgggcccagcggcacccgggagaggccgcggga 16645


Query: 3904  cgggcgggcgtgggcgggttccctggcccgggacgggaagcaggacgcgggccaggacgc 3963
             |||||||||||||||| ||||||||||||||||||||||||||||||||||||||||||||
Sbjct: 16646 cgggcgggcgtgggcgcgttccctggcccgggacgggaagcaggacgcgggccaggacgc 16705


Query: 3964  tcccaggggcgaggctccggcgcggcacggcgggccctgctaaataaggaacgcctggag 4023
             |||||||| |||||||||||||||||| |||| ||||||||||||||||||||||||||
Sbjct: 16706 tcccaggg-cgaggctccggcgcggcacagcgg-ccctgctaaataaggaacgcctggag 16763


Query: 4024  ccgcggttggcacggccccggggagccgaaaaaccccgggtctggagacagacgtcccac 4083
             ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Sbjct: 16764 ccgcggttggcacggccccggggagccgaaaaaccccgggtctggagacagacgtcccac 16823
                    PstI
Query: 4084  ccgggggctctgcagacgccagcgggggcggggcgcggaggccgcgctcagctgggagga 4143
             |||||||||||| ||||||||||||||||||||||||||||||||||||||||||||||||
Sbjct: 16824 ccgggggctctgcggacgccagcgggggcggggcgcggaggccgcgctcagctgggagga 16883


Query: 4144  caaacagtcgctaattggagaggaattgggatgcggcctggggctgcggggtacccggag 4203
             |||||||||||||||||||||||||||||| ||||||||||||||||||||||||||||
Sbjct: 16884 caaacagtcgctaattggagaggaattgggattcggcctggggctgcggggtacccggag 16943


Query: 4204  aggtggggatggctgtaggggggcggcagggaagagttccaggaggtgtctggaaaaggat 4263
             || |||||||||||||||||| |||||||||||||||||||||||||||||| ||||||
Sbjct: 16944 agatggggatggctgtaggggggctgcagggaagagttccaggaggtgtctggacaaggat 17003
```

Exon 1—Homolog 1

```
Query: 3844  ccgcggacgccacagcgctgtgagtagcgggcccagcggcacccgggagaggccgcggga 3903
             ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Sbjct: 16586 ccgcggacgccacagcgctgtgagtagcgggcccagcggcacccgggagaggccgcggga 16645


Query: 3904  cgggcgggcgtgggcgggttccctggcccgggacgggaagcaggacgcgggccaggacgc 3963
             |||||||||||||||| ||||||||||||||||||||||||||||||||||||||||||||
Sbjct: 16646 cgggcgggcgtgggcgcgttccctggcccgggacgggaagcaggacgcgggccaggacgc 16705


Query: 3964  tcccaggggcgaggctccggcgcggcacggcgggccctgctaaataaggaacgcctggag 4023
             |||||||| |||||||||||||||||| |||| ||||||||||||||||||||||||||
Sbjct: 16706 tcccaggg-cgaggctccggcgcggcacagcgg-ccctgctaaataaggaacgcctggag 16763
```

FIG 2 Cont.

Stretch of Exon 6—Homolog 1

```
Query: 21589 tcgttcccaccggtctccagcggtgcacccgctctgcccctcggacacggagatcttccc 21648
             ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||| |
Sbjct: 23917 tcgttcccaccggtctccagcggtgcacccgctctgcccctcggacacggagatcttctc 23976


Query: 21649 tggcaacgggcactgctaccgcctggtggtggagaaggcggcctggctgcaggcgcagga 21708
             |||||| ||||||||||||||||||||||||||||||||||||||||||||||||||||
Sbjct: 23977 tggcaatgggcactgctaccgcctggtggtggagaaggcggcctggctgcaggcgcagga 24036

                      StuI
Query: 21709 gcagtgtcaggcctgggccggggccgccctggcaatggtggacagtcccgccgtgcagcg 21768
             |||||||| |||||||||||||||| |||||||||||||||||||||||||||||||
Sbjct: 24037 gcagtgtcgggcctgggccggggccaccctggcaatggtggacagtcccgccgtgcagcg 24096
```

Stretch of Exon 6—Homolog 2

```
Query: 21589 tcgttcccaccggtctccagcggtgcacccgctctgcccctcggacacggagatcttccc 21648
             ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||| |
Sbjct: 63611 tcgttcccaccggtctccagcggtgcacccgctctgcccctcggacacggagatcttctc 63670


Query: 21649 tggcaacgggcactgctaccgcctggtggtggagaaggcggcctggctgcaggcgcagga 21708
             ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Sbjct: 63671 tggcaacgggcactgctaccgcctggtggtggagaaggcggcctggctgcaggcgcagga 63730


Query: 21709 gcagtgtcaggcctgggccggggccgccctggcaatggtggacagtcccgccgtgcagcg 21768
             |||||||| |||||||||||||||| |||||||||||||||||||||||||||||||
Sbjct: 63731 gcagtgtcgggcctgggccggggccaccctggcaatggtggacagtcccgccgtgcagcg 63790
```

Adobe Acrobat PDF Files Page 8 of 10 http://www.adobe.com/products/acrobat/adobepdf.html

FIG 2 Cont.

Stretch of Exon 10—Homolog 1

```
Query: 23622 aaatcagggccccaacaccctcccctcctcacagggaccccggagaacggcagcgagcct 23681
             ||| ||||||||||||||||||||||||| ||||||||||||||||||||||||||||
Sbjct: 25938 gaatgagggccccaacaccctcccctcctcgcagggaccccggagaacggcagcgagcct 25997


Query: 23682 gagagcaggtccccggacaacaggacccagctggcccccgcgtgcatgccaggggacgc 23741
             ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Sbjct: 25998 gagagcaggtccccggacaacaggacccagctggcccccgcgtgcatgccaggggacgc 26057


Query: 23742 tggtgccctggagccaacatctgcttgccgctggacgcctcctgccacccccaggcctgc 23801
             |||||||||||||||||||||||||||||||| |||||||||||| ||||||||
Sbjct: 26058 tggtgccctggagccaacatctgcttgccgctggacacctcctgccacccc-aggcctgc 26116

                                          XmaI
Query: 23802 gccaatggctgcacgtcaggg-ccagggctacccggggccccctatgcgctatggagaga 23860
             |||||||||||||||||||| |||||||||| ||||||||||||||||||||||||||
Sbjct: 26117 gccaatggctgcacgtcaggggccagggctactcggggccccctatgcgctatggagaga 26176


Query: 23861 gttcctcttctccgttcccgcggggccccccgcgcagtactcggtgtgtggccctgacct 23920
             ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Sbjct: 26177 gttcctcttctccgttcccgcggggccccccgcgcagtactcggtgtgtggccctgacct 26236


Query: 23921 gggtctgttccctgcatctcctcaggccaccttcctgtctgctgcccagggtctgggtct 23980
             ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Sbjct: 26237 gggtctgttccctgcatctcctcaggccaccttcctgtctgctgcccagggtctgggtct 26296
```

Stretch of Exon 10—Homolog 2

```
Query: 23622 aaatcagggccccaacaccctcccctcctcacagggaccccggagaacggcagcgagcct 23681
             ||| ||||||||||||||||||||||||| ||||||||||||||||||||||||||||
Sbjct: 65628 gaatgagggccccaacaccctcccctcctcgcagggaccccggagaacggcagcgagcct 65687


Query: 23682 gagagcaggtccccggacaacaggacccagctggcccccgcgtgcatgccaggggacgc 23741
             ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Sbjct: 65688 gagagcaggtccccggacaacaggacccagctggcccccgcgtgcatgccaggggacgc 65747


Query: 23742 tggtgccctggagccaacatctgcttgccgctggacgcctcctgccacccccaggcctgc 23801
             |||||||||||||||||||||||||||||||||||||||||||||||||| ||||||||
Sbjct: 65748 tggtgccctggagccaacatctgcttgccgctggacgcctcctgccacccc-aggcctgc 65806


Query: 23802 gccaatggctgcacgtcaggg-ccagggctacccggggccccctatgcgctatggagaga 23860
             |||||||||||||||||||| |||||||||| ||||||||||||||||||||||||||
Sbjct: 65807 gccaatggctgcacgtcaggggccagggctactcggggccccctatgcgctatggagaga 65866


Query: 23861 gttcctcttctccgttcccgcggggccccccgcgcagtactcggtgtgtggccctgacct 23920
             ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Sbjct: 65867 gttcctcttctccgttcccgcggggccccccgcgcagtactcggtgtgtggccctgacct 65926


Query: 23921 gggtctgttccctgcatctcctcaggccaccttcctgtctgctgcccagggtctgggtct 23980
             ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Sbjct: 65927 gggtctgttccctgcatctcctcaggccaccttcctgtctgctgcccagggtctgggtct 65986
```

FIG 2 Cont.

Exon 11—Homolog 1

```
Query: 24267 agccctgcgtgtccaccctcatccgtcgtgcggggtccacgggccatgaccgtgaggac 24326
             ||||||||||||||||||||||||||||||| |||||||||||||||||||||||||
Sbjct: 26604 agccctgcgtgtccaccctcatccgtcgtgcaggggtccacgggccatgaccgtgaggac 26663

Query: 24327 gtgatgcagccctgcctccctctccacaggtcaccctccacggccaggatgtcctcatgc 24386
             |||||||||||||||||||||||||||||||||||||| ||||||||||||||||||
Sbjct: 26664 gtgatgcagccctgcctccctctccacaggtcaccctccacagccaggatgtcctcatgc 26723

Query: 24387 tccctggtgacctcgttggcttgcagcacgacgctggccctggcgccctcctgcactgct 24446
             ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Sbjct: 26724 tccctggtgacctcgttggcttgcagcacgacgctggccctggcgccctcctgcactgct 26783

                                        XmaI
Query: 24447 cgccggctcccggccaccctggtccccgggccccgtacctctccgccaacgcctcgtcat 24506
             |||||||||||||||||||||||| |||||||||||||||||||||||||||||||||
Sbjct: 26784 cgccggctcccggccaccctggtccccaggccccgtacctctccgccaacgcctcgtcat 26843

Query: 24507 ggctgccccacttgccagcccagctggagggcacttgggcctgccctgcctgtgccctgc 24566
             ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Sbjct: 26844 ggctgccccacttgccagcccagctggagggcacttgggcctgccctgcctgtgccctgc 26903

Query: 24567 ggctgcttgcagccacggaacagctcaccgtgctgctgggcttgaggcccaaccctggac 24626
             |||||||||||||||||||||||||||||||||||||| |||||||||||||||| |
Sbjct: 26904 ggctgcttgcagccacggaacagctcaccgtgctgctgggcctgaggcccaaccctgggc 26963

Query: 24627 tgcggctgcctgggcgctatgaggtccgggcagaggtgggcaatggcgtgtccaggcaca 24686
             ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Sbjct: 26964 tgcggctgcctgggcgctatgaggtccgggcagaggtgggcaatggcgtgtccaggcaca 27023

Query: 24687 acctctcctgcagctttgacgtggtctccccagtggctgggctgcgggtcatctaccctg 24746
             |||| ||||||||||||||||||||||||||||||||||||||||||||||||||||
Sbjct: 27024 acctgtcctgcagctttgacgtggtctccccagtggctgggctgcgggtcatctaccctg 27083

Query: 24747 ccccccgcgacggccgcctctacgtgcccaccaacggctcagccttggtgctccaggtgg 24806
             |||||||||||||||||||||||||||||||||||||||||| ||||||||||||||
Sbjct: 27084 ccccccgcgacggccgcctctacgtgcccaccaacggctcagcctcggtgctccaggtgg 27143

Query: 24807 actctggtgccaacgccacggccacggctcgctggcctgggggcagtgtcagcgcccgct 24866
             |||||||||||| ||||||||||||||||||||||||||||||||||||||||||||
Sbjct: 27144 actctggtgccagcgccacggccacggctcgctggcctgggggcagtgtcagcgcccgct 27203

Query: 24867 ttgagaatgtctgccctgccctggtggccaccttcgtgcccggctgcccctgggagacca 24926
             ||||||||| |||||||||||||||||||||||||||| ||||||||||||||||||
Sbjct: 27204 ttgagaatgcctgccctgccctggtggccaccttcgtgcccagctgcccctgggagacca 27263

Query: 24927 acgataccctgttctcagtggtagcactgccgtggctcagtgaggggagcacgtggtgg 24986
             | ||||||||||||||||||||||||||||||||| |||||||||||||||| |||
Sbjct: 27264 atgataccctgttctcagtggtagcactgccgtggctcggtgaggggagcacgtgatgg 27323

Query: 24987 acgtggtggtggaaaacagcgccagccgggccaacctcagcctgcgggtgacggcggagg 25046
             |||| ||||||||||||||||||||||||||||||||||||||||||||||||||||
Sbjct: 27324 acgttgtggtggaaaacagcgccagccgggccaacctcagcctgcgggtgacggcggagg 27383

Query: 25047 agcccatctgtggcctccgcgccacgcccagccccgaggcccgtgtactgcagggagtcc 25106
             ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Sbjct: 27384 agcccatctgtggcctccgcgccacgcccagccccgaggcccgtgtactgcagggagtcc 27443
```

FIG 2 Cont.

```
Query: 25107 tagtggtgagtatggccgaggctccaccaccagcccccaggcaggtgcctgcagacaggg 25166
              |   ||||||||||||||||||||||||||||||||||||||||||||||||||||
Sbjct: 27444 ca---gtgagtatggccgaggctccaccaccagcccccaggcaggtgcctgcagacaggg 27500


Query: 25167 tgctcacacagggcgtgaggcctggcttcccagtgagggcagcagcccagttactgggga 25226
              |||||||||||||| ||||||||||||||||||||||||||||||||||||||||||
Sbjct: 27501 tgctcacacagggcttgaggcctggcttcccagtgagggcagcagcccagttactgggga 27560
```

Exon 11--Homolog 2

```
Query: 24267 agccctgcgtgtccaccctcatccgtcgtgcgggggtccacgggccatgaccgtgaggac 24326
              |||||||||||||||||||||||||||||| ||||||||||||||||||||||||||
Sbjct: 66294 agccctgcgtgtccaccctcatccgtcgtgcaggggtccacgggccatgaccgtgaggac 66353


Query: 24327 gtgatgcagccctgcctccctctccacaggtcaccctccacggccaggatgtcctcatgc 24386
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Sbjct: 66354 gtgatgcagccctgcctccctctccacaggtcaccctccacggccaggatgtcctcatgc 66413


Query: 24387 tccctggtgacctcgttggcttgcagcacgacgctggccctggcgccctcctgcactgct 24446
              |||||||||||||||||||||||||||||||||||||||||||||||||| ||||||||
Sbjct: 66414 tccctggtgacctcgttggcttgcagcacgacgctggccctggcgccctcccgcactgct 66473


Query: 24447 cgccggctcccggccaccctggtccccgggccccgtacctctccgccaacgcctcgtcat 24506
              |||||||||||||||||||||||||| ||||||||||||||||||||||||||||||
Sbjct: 66474 cgccggctcccggccaccctggtccccaggccccgtacctctccgccaacgcctcgtcat 66533


Query: 24507 ggctgccccacttgccagcccagctggagggcacttgggcctgccctgcctgtgccctgc 24566
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Sbjct: 66534 ggctgccccacttgccagcccagctggagggcacttgggcctgccctgcctgtgccctgc 66593


Query: 24567 ggctgcttgcagccacggaacagctcaccgtgctgctgggcttgaggcccaaccctggac 24626
              |||||||||||||||||||||||||||||||||||| ||||||||||||||| |
Sbjct: 66594 ggctgcttgcagccacggaacagctcaccgtgctgctgggcctgaggcccaaccctgggc 66653


Query: 24627 tgcggctgcctgggcgctatgaggtccgggcagaggtgggcaatggcgtgtccaggcaca 24686
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Sbjct: 66654 tgcggctgcctgggcgctatgaggtccgggcagaggtgggcaatggcgtgtccaggcaca 66713


Query: 24687 acctctcctgcagctttgacgtggtctccccagtggctgggctgcgggtcatctaccctg 24746
              ||||| ||||||||||||||||||||||||||||||||||||||||||||||||||||
Sbjct: 66714 acctgtcctgcagctttgacgtggtctccccagtggctgggctgcgggtcatctaccctg 66773


Query: 24747 ccccccgcgacggccgcctctacgtgcccaccaacggctcagccttggtgctccaggtgg 24806
              |||||||||||||||||||||||||||||||||||||||||| ||||||||||||||
Sbjct: 66774 ccccccgcgacggccgcctctacgtgcccaccaacggctcagcctcggtgctccaggtgg 66833


Query: 24807 actctggtgccaacgccacggccacggctcgctggcctgggggcagtgtcagcgcccgct 24866
              |||||||||||| ||||||||||||||||||||||||||||||||||||||||||||
Sbjct: 66834 actctggtgccagcgccacggccacggctcgctggcctgggggcagtgtcagcgcccgct 66893


Query: 24867 ttgagaatgtctgccctgccctggtggccaccttcgtgcccggctgcccctgggagacca 24926
              ||||||||| ||||||||||||||||||||||||||||||||||||||||||||||||
Sbjct: 66894 ttgagaatgcctgccctgccctggtggccaccttcgtgcccggctgcccctgggagacca 66953
```

FIG 2 Cont.

```
Query: 24927 acgataccctgttctcagtggtagcactgccgtggctcagtgaggggagcacgtggtgg 24986
             | ||||||||||||||||||||||||||||||||||| |||||||||||||||| |||
Sbjct: 66954 atgataccctgttctcagtggtagcactgccgtggctcggtgaggggagcacgtgatgg 67013

Query: 24987 acgtggtggtggaaaacagcgccagccgggccaacctcagcctgcgggtgacggcggagg 25046
             |||| ||||||||||||||||||||||||||||||||||||||||||||||||||||||
Sbjct: 67014 acgttgtggtggaaaacagcgccagccgggccaacctcagcctgcgggtgacggcggagg 67073

Query: 25047 agcccatctgtggcctccgcgccacgcccagccccgaggcccgtgtactgcagggagtcc 25106
             ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Sbjct: 67074 agcccatctgtggcctccgcgccacgcccagccccgaggcccgtgtactgcagggagtcc 67133

Query: 25107 tagtggtgagtatggccgaggctccaccaccagcccccaggcaggtgcctgcagacaggg 25166
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Sbjct: 67134 cagtggtgagtatggccgaggctccaccaccagcccccaggcaggtgcctgcagacaggg 67193
```

```
Query: 25167 tgctcacacagggcgtgaggcctggcttcccagtgagggcagcagcccagttactgggga 25226
             ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Sbjct: 67194 tgctcacacagggcgtgaggcctggcttcccagtgagggcagcagcccagttactgggga 67253
```

[illegible]

FIG 2 Cont.

Exon 15—Homolog 1

```
Query: 27279 tgggacccttaaggctgggccgcaggtgcagccgttcaccccgggctcctcaggcggggg 27338
             ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Sbjct: 29661 tgggacccttaaggctgggccgcaggtgcagccgttcaccccgggctcctcaggcggggg 29720


Query: 27339 gcttctgccgagcgggtggggagcaggtgggggtgccgcggctgccccactcgggcctgt 27398
             |||||||| ||||||||||||||||||||||||||||||||||||||||||||| ||||||||
Sbjct: 29721 gcttctgctgagcgggtggggagcaggtgggggtgccgcggctgccccacttgggcctgt 29780


Query: 27399 ccccacaggtgagtacctcctgaccgtgctggcatctaatgccttcgagaaccggacgca 27458
             |||||||||||||||| ||||||||||||||||||||||||||||||||||||||||||||
Sbjct: 29781 ccccacaggtgagtacgtcctgaccgtgctggcatctaatgccttcgagaaccggacgca 29840


Query: 27459 gcaggtgcctgtgagcgtgcgcgcctccctgccctccgtg 27498
             |||||||||||||||||| |||||||||||||| |||
Sbjct: 29841 gcaggtgcctgtgagcgtgtgcgcctccctgccctctgtg 29880
```

Exon 15—Homolog 2

```
Query: 27279 tgggacccttaaggctgggccgcaggtgcagccgttcaccccgggctcctcaggcggggg 27338
             ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Sbjct: 69326 tgggacccttaaggctgggccgcaggtgcagccgttcaccccgggctcctcaggcggggg 69385


Query: 27339 gcttctgccgagcgggtggggagcaggtgggggtgccgcggctgccccactcgggcctgt 27398
             ||||||||||||||||||||||||||||||||||||||||||||||||||||| ||||||||
Sbjct: 69386 gcttctgccgagcgggtggggagcaggtgggggtgccgcggctgccccacttgggcctgt 69445


Query: 27399 ccccacaggtgagtacctcctgaccgtgctggcatctaatgccttcgagaaccggacgca 27458
             |||||||||||||||| ||||||||||||||||||||||||||||||||||||||||||||
Sbjct: 69446 ccccacaggtgagtacgtcctgaccgtgctggcatctaatgccttcgagaaccggacgca 69505


Query: 27459 gcaggtgcctgtgagcgtgcgcgcctccctgccctccgtggctgtgggtgtgagtgacgg 27518
             |||||||||||||||||||||||||||||||||||| |||||||||||||||||||
Sbjct: 69506 gcaggtgcctgtgagcgtgcgcgcctccctgccctccgaggctgtgggtgtgagtgacgg 69565


Query: 27519 cgtcctggtggccggccggcccgtcaccttctacccgcacccgctgccctcgcctggggg 27578
             |||||||||||||||||||||||||||||||||||| | ||||||||||||||||||
Sbjct: 69566 cgtcctggtggccggccggcccgtcaccttctacccgcatctgctgccctcgcctggggg 69625


Query: 27579 tgttctttacacgtgggacttcggggacggctcccctgtcctgacccagagccagccggc 27638
             ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Sbjct: 69626 tgttctttacacgtgggacttcggggacggctcccctgtcctgacccagagccagccggc 69685


Query: 27639 tgccaaccacacctatgcctcgaggggcacctaccacgtgcgcctggaggtcaacaacac 27698
             |||||||||||||||| |||||||||| |||||||||||||||||||||||||||||
Sbjct: 69686 tgccaaccacacctatccctcgaggggcatctaccacgtgcgcctggaggtcaacaacac 69745


Query: 27699 ggtgagcggtgcggcggcccaggcggatgtgcgcgtctttgaggagctccgcggactcag 27758
             |||||||||||||||||||||||||||||||||||||||||||||||||||| |||||
Sbjct: 69746 ggtgagcggtgcggcggcccaggcggatgtgcgcgtctttgaggagctccgcgggctcag 69805


Query: 27759 cgtggacatgagcctggccgtggagcagggcgcccccgtggtggtcagcgccgcggtgca 27818
```

FIG 2 Cont.

```
Sbjct: 69806 cgtggacatgagcctggccgtggagcagggcgcccccgtggtggtcagtgccgcggtgca 69865

Query: 27819 gacgggcgacaacatcacgtggaccttcgacatgggggacggcaccgtgctgtcgggccc 27878
Sbjct: 69866 gacgggcgacaacatcacgtggaccttcgacatgggggacggcaccgtgctgtcgggccc 69925

Query: 27879 ggaggcaacagtggagcatgtgtacctgcgggcacagaactgcacagtgaccgtgggtgc 27938
Sbjct: 69926 agaggccacagtggagcatgtgtacctgcgggcacagaactgcacagtgaccgtgggtgc 69985

Query: 27939 ggccagccccgccggccacctggcccggagcctgcacgtgctggtcttcgtcctggaggt 27998
Sbjct: 69986 ggccagccccgccggccacctggcccggagcctgcacgtgctggtcttcgtcctggaggt 70045

Query: 27999 gctgcgcgttgaacccgccgcctgcatccccacgcagcctgacgcgcggctcacggccta 28058
Sbjct: 70046 gctgcgcgtcgagcccgccgcctgcatccccactcagcctgacgcgcggctcacggccta 70105

Query: 28059 cgtcaccgggaacccggcccactacctcttcgactggaccttcggggatggctcctccaa 28118
Sbjct: 70106 cgtcaccgggaacccggcccgctacctcttcgactggacctttggggatggctcctccaa 70165

                                                    MluI
Query: 28119 cacgaccgtgcgggggtgcccgacggtgacacacaacttcacgcggagcggcacgttccc 28178
Sbjct: 70166 cacgaccatgcgggggtgcccgacggtgacacacaacttcacgcgtagcggcacgttccc 70225

Query: 28179 cctggcgctggtgctgtccagccgcgtgaacagggcgcattacttcaccagcatctgcgt 28238
Sbjct: 70226 cctggcgctggtgctgtccagccgcgtgaacagggcgcgttacttcaccagcatctgcgt 70285

Query: 28239 ggagccagaggtgggcaacgtcaccctgcagccagagaggcagtttgtgcagctcgggga 28298
Sbjct: 70286 ggagccagaggtgggcaacgtcaccctgcagccagagaggcagtttgtgcagctcgggga 70345

Query: 28299 cgaggcctggctggtggcatgtgcctggcccccgttcccctaccgctacacctgggactt 28358
Sbjct: 70346 cgaggcccggctggtggcatgtgcctggcccccgttcccctaccgctacacctgggactt 70405

Query: 28359 tggcaccgaggaagccgcccccacccgtgccaggggccctgaggtgacgttcatctaccg 28418
Sbjct: 70406 tggcaccgaagaagccgtccccgcccgtgtcggggggccctgaggtgacgttcatctaccg 70465

Query: 28419 agacccaggctcctatcttgtgacagtcaccgcgtccaacaacatctctgctgccaatga 28478
Sbjct: 70466 agacccaggctcctatcttgtgacagtcaccgcgtccaacaacatctccgctgccaatga 70525

Query: 28479 ctcagccctggtggaggtgcaggagcccgtgctggtcaccagcatcaaggtcaatggctc 28538
Sbjct: 70526 ctcagccctggtggaggtgcaggagcccatgctggtcaccagcatcaaggtcaatggctc 70585

Query: 28539 ccttgggctggagctgcagcagccgtacctgttctctgctgtgggccgtgggcgccccgc 28598
Sbjct: 70586 ccttgggctggagctgcagtagccgtacctgttctctgctgtgggccgtgggcgccccgc 70645

Query: 28599 cagctacctgtgggatctgggggacggtgggtggctcgagggtccggaggtcacccacgc 28658
```

FIG 2 Cont.

```
Sbjct: 70646 cagctacctgtgggatctgggggacggtgggcggctcgagggtccggaggtcacccacgc 70705


Query: 28659 ttacaacagcacaggtgacttcaccgttagg-tggccggctggaatgaggtgagccgcag 28717
              |||||||||||||||||||||||||||||| |||||||||| ||||||||||||||||
Sbjct: 70706 ttacaacagcacaggtgacttcaccgttagggtggccggctgcaatgaggtgagccgcag 70765


Query: 28718 cgaggcctggctcaatgtgacggtgaagcggcgcgtgcgggggctcgtcgtcaatgcaag 28777
              |||||||||||||||||||||||||||||||||||||||||||||||||| |||||||||| ||
Sbjct: 70766 cgaggcctggctcaatgtgacggtgaagcggcgcgtgcgggggctcatcgtcaatgccag 70825


Query: 28778 ccccacggtggtgcccctgaatgggagcgtgagcttcagcacgtcgctggaggccggcag 28837
              |  |||||||||||||||||||||||| |||||||||||| ||||||||||||||||
Sbjct: 70826 ctgcacggtggtgcccctgaatgggagcatgagcttcagcacctcgctggaggccggcag 70885


Query: 28838 tgatgtgcgctattcctgggtgctctgtgaccgctgcacgcccatcccctgggggtcctac 28897
              |||||||||||||||||||||||||||||||||||||||||||||||||| |||||||||| |
Sbjct: 70886 tgatgtgcgctattcctgggtgctctgtgaccgctgcacgcccatctctgggggtcctgc 70945


Query: 28898 catctctt-acaccttccgctccgtgggcaccttcaatatcatcgtcacggctgagaacg 28956
              |||||||| |||||||||||||||||||||||||||||||||||||||| |||||||||
Sbjct: 70946 catctctttacaccttccgctccgtgggcaccttcaatatcatcgtcacagctgagaacg 71005


Query: 28957 aggtgggctccgcccaggacagcatcttcgtctatgtcctgcagctcatagaggggctgc 29016
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Sbjct: 71006 aggtgggctccgcccaggacagcatcttcgtctatgtcctgcagctcatagaggggctgc 71065


Query: 29017 aggtggtgggcggtggccgctacttccccaccaaccacacggtacagctgcaggccgtgg 29076
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Sbjct: 71066 aggtggtgggcggtggccgctacttccccaccaaccacacggtacagctgcaggccgtgg 71125


Query: 29077 ttagggatggcaccaacgtctcctacagctggactgcctggagggacaggggcccggccc 29136
              | |||||||||||||| |||   ||||||||||||||||||||||||||||||||||
Sbjct: 71126 tcagggatggcaccaacatct---acagctggactgcctggagggacaggggcccggccc 71182


Query: 29137 tggccggcagcggcaaaggcttctcgctcaccgt-ctcgaggccggcacctaccatgtgc 29195
              |||||||||||||||||||||||||||||| |  ||||||||||||||||||||||||
Sbjct: 71183 tggccggcagcggcaaaggcttctcgctcactgcgctcgaggccggcacctaccatgtgc 71242


Query: 29196 agctgcgggccaccaacatgctgggcagcgcctgggccgactgcaccatggacttcgtgg 29255
              |||||||||||||||||||||||||||||||||||||| |||||||| ||||||||||||
Sbjct: 71243 agctgcgggccaccaacatgctgggcagcgcctgggctgactgcaccgtggacttcgtgg 71302


Query: 29256 agcctgtggggtggctgatggtggccgcctccccgaacccagctgccgtcaacaaaagcg 29315
              |||||||||||||||||||||||||||||||||||||||||||||||||||| ||| |
Sbjct: 71303 agcctgtggggtggctgatggtggccgcctccccgaacccagctgccgtcaacacaagtg 71362


Query: 29316 tcaccctcagtgccgagctggctggtggcagtggtgtcgtatacacttggtccttggagg 29375
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Sbjct: 71363 tcaccctcagtgccgagctggctggtggcagtggtgtcgtatacacttggtccttggagg 71422


Query: 29376 aggggctgagctgggagacctccgagccatttaccacccatagcttccccacacccggcc 29435
              |||||||||||||||||| |||||||||||||||| ||||||||||||||||||
Sbjct: 71423 aggggctgagctgggagaccccgagccatttaccacccacagcttccccacacccggcc 71482


Query: 29436 tgcacttggtcaccatgacggcagggaacccgctgggctcagccaacgccaccgtggaag 29495
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Sbjct: 71483 tgcacttggtcaccatgacggcagggaacccgctgggctcagccaacgccaccgtggaag 71542
```

FIG 2 Cont.

```
Query: 29496 tggatgtgcaggtgcctgtgagtggcctcagcatcagggccagcgagcccggaggcagct 29555
              ||||||||||||||||||||||||||||||||||||||||||||||||||| ||||||||||
Sbjct: 71543 tggatgtgcaggtgcctgtgagtggcctcagcatcagggccagcgagccgggaggcagct 71602


Query: 29556 tcgtggcggccgggtcctctgtgccctttttgggggcagctggccacgggcaccaatgtga 29615
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Sbjct: 71603 tcgtggcggccgggtcctctgtgccctttttgggggcagctggccacgggcaccaatgtga 71662


Query: 29616 gctggtgctgggctgtgcccggcggcagcagcaagcgtggccctcatgtcaccatggtct 29675
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Sbjct: 71663 gctggtgctgggctgtgcccggcggcagcagcaagcgtggccctcatgtcaccatggtct 71722


Query: 29676 tcccggatgctggcaccttctccatccggctcaatgcctccaacgcagtcagctgggtct 29735
              |||||||||||||||||||  ||||||||||||||||||||||||||||||||||||
Sbjct: 71723 tcccggatgctggcaccttcaacatccggctcaatgcctccaacgcagtcagctgggtct 71782


Query: 29736 cagccacgtacaacctcacggcggaggagcccatcgtgggcctggtgctgtgggccagca 29795
              |||||||||||||||||||| ||||||||||||||||||||||||||||||||||||
Sbjct: 71783 cagccacgtacaacctcacggtggaggagcccatcgtgggcctggtgctgtgggccagca 71842


Query: 29796 gcaaggtggtggcgcccgggcagctggtccattttcagatcctgctggctgccggctcag 29855
              |||||||||||||||||||||||| ||||||||||||||||||||||||||||||||
Sbjct: 71843 gcaaggtggtggcgcccgggcagcttgtccattttcagatcctgctggctgccggctcag 71902

                                  PstI                                  XmaI
Query: 29856 ctgtcaccttccgcctgcaggtcggcggggccaaccccgaggtgctccccgggccccgtt 29915
              |||||||||||||||| |||||||||||||||| |||||| |||||||| ||||||||||
Sbjct: 71903 ctgtcaccttccgccggcaggtcggcggggccagccccgaagtgctccctgggccccgtt 71962


Query: 29916 tctcccacagcttcccccgcgtcggagaccacgtggtgagcgtgcggggcaaaaaccacg 29975
              |||||||||||||||||| |||||||||||||||||||||||| | ||||||||||||
Sbjct: 71963 tctcccacagcttcccccgcatcggagaccacgtggtgagcgtgcagagcaaaaaccacg 72022


Query: 29976 tgagctgggcccaggcgcaggtgcgcatcgtggtgctggaggccgtgagtgggctgcagg 30035
              ||||||||||||||||||||||||||||||||||||||||||||||||||| ||||||||||
Sbjct: 72023 tgagctgggcccaggcgcaggtgcgcatcgtggtgctggaggccgtgagcgggctgcagg 72082


Query: 30036 tgcccaactgctgcgagcctggcatcgccacgggcactgagaggaacttcacagcccgcg 30095
              |||||||||||||| |||||||||||||||| ||||||||||||||||||||||||||||
Sbjct: 72083 tgcccaactgctgtgagcctggcatcgccatgggcactgagaggaacttcacagcccgcg 72142


Query: 30096 tgcagcgcggctctcgggtcgcctacgcctggtacttctcgctgcagaaggtccagggcg 30155
              |||||||||||||||||||||||||||||||| |||||||||||||||||| |||||
Sbjct: 72143 tgcagcgcggctctcgggtcgcctacgcctggtatttctcgctgcagaaggtccggggcg 72202


Query: 30156 actcgctggtcatcctgtcgggccgcgacgtcacctacacgcccgtggccgcggggctgt 30215
              |||| ||| ||||||||||||||||||||||||||||||| ||||||||||||||||
Sbjct: 72203 actctctgttcatcctgtcgggccgcgacgtcacctacacgcc-gtggccgcggggctgt 72261

                          BssHII
Query: 30216 tggagatccaggtgcgcgccttcaacgccctgggcagtgagaaccgcacgctggtgctgg 30275
              |||||||||||||||| ||||||||||||||||||||||||||||||||||||||||||
Sbjct: 72262 tggagatccaggtgcgtgccttcaacgccctgggcagtgagaaccgcacgctggtgctgg 72321

                                                PstI
Query: 30276 aggttcaggacgccgtccagtatgtggccctgcagagcggcccctgcttcaccaaccgct 30335
              |||||||||||||||||||||||||||||||| |||||||||||||||||||||||||
Sbjct: 72322 aggttcaggacgccgtccagtatgtggccctgcggagcggcccctgcttcaccaaccgct 72381
```

FIG 2 Cont.

```
Query: 30336 cggcgcagtttgaggccgccaccagccccagcccccggcgtgtggcctaccactgggact 30395
              |||||||||||||||||||||||||||||||||||||||| ||||||||||||||||||
Sbjct: 72382 tggcgcagtttgaggccgccaccagccccagcccccggcgcgtggcctaccactgggact 72441


Query: 30396 ttggggatgggtcgccagggcaggacacagatgagcccagggccgagcactcctacctga 30455
              |||||||||||| |||||||||||||||| |||||||||||||||||||||||||||
Sbjct: 72442 ttggggatgggtccccagggcaggacacagataagcccagggccgagcactcctacctga 72501


Query: 30456 ggcctggggactaccgcgtgcaggtgaacgcctccaacctggtgagcttcttcgtggcgc 30515
              |||||||||||||||||||||||||||||||||||||||||||||||| ||||||||||
Sbjct: 72502 ggcctggggactaccgcgtgcaggtgaacgcctccaacctggtgagctttttcgtggcgc 72561


Query: 30516 aggccacggtgaccgtccaggtgctggcctgccgggagccggaggtggacgtggtcctgc 30575
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Sbjct: 72562 aggccacggtgaccgtccaggtgctggcctgccgggagccggaggtggacgtggtcctgc 72621
```

```
Query: 30576 ccctgcaggtgctgatgcggcgatcacagcgcaactacttggaggcccacgttgacctgc 30635
              |||||||||||||||||| |||||||||||||| | |||| ||| ||||||||||||
Sbjct: 72622 ccctgcaggtgctgatgcgacgatcacagcgcaactgcctggatgcctacgttgacctgc 72681


Query: 30636 gcgactgcgtcacctaccagactgagtaccgctgggaggtgtatcgcaccgccagctgcc 30695
              ||||||| |||||||||||||||||||||||||||||||| ||||||||||||||||
Sbjct: 72682 gcgactgtgtcacctaccagactgagtaccgctgggaggtgtaccgcaccgccagctgcc 72741


Query: 30696 agcggccggggcgcccagcgcgtgtggccctgcccggcgtggacgtgagccggcctcggc 30755
              |||||||||||| |||| ||||||||||||||||||||||||||||||||||||| ||
Sbjct: 72742 agcggccggggtgcccggcgcgtgtggccctgcccggcgtggacgtgagccggcctcagc 72801


Query: 30756 tggtgctgccgcggctggcgctgcctgtggggcactactgctttgtgtttgtcgtgtcat 30815
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Sbjct: 72802 tggtgctgccgcggctggcgctgcctgtggggcactactgctttgtgtttgtcgtgtcat 72861


Query: 30816 ttggggacacgccactgacacagagcatccaggccaatgtgacggtggcccccgagcgcc 30875
              |||||||||||||||| ||| ||||||||||||||||||||||||||||||||||||
Sbjct: 72862 ttggggacacgccactggcacggagcatccaggccaatgtgacggtggcccccgagcgcc 72921


Query: 30876 tggtgcccatcattgagggtggctcataccgcgtgtggtcagacacacgggacctggtgc 30935
              |||||||||||| |||||||||||| ||||||||||||||||||| ||||||||||||
Sbjct: 72922 tggtgcccatcactgagggtggctcctaccgcgtgtggtcagacacacaggacctggtgc 72981
```

```
Query: 30936 tggatgggagcgagtcctacgaccccaacctggaggacggcgaccagacgccgctcagtt 30995
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Sbjct: 72982 tggatgggagcgagtcctacgaccccaacctggaggacggcgaccagacgccgctcagtt 73041


Query: 30996 tccactgggcctgtgtggcttcgacacaggtcagtgcgtggcagggccgtcctccatgcc 31055
              |||| ||||||||||||||||||||||||||||||||||||||||||||||| ||||
Sbjct: 73042 tccagtgggcctgtgtggcttcgacacaggtcagtgcgtggcagggccgtcctccctgcc 73101


Query: 31056 cctcacccgtccacacccatgagcccagagaacacccagcttgccaccagggctggcccg 31115
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Sbjct: 73102 cctcacccgtccacacccatgagcccagagaacacccagcttgccaccagggctggcccg 73161
```

FIG 2 Cont.

Exon 16—Homolog 2

```
Query: 31176 gggccgggctctgctttaaaactggatggggctctcaggccacgtcgccccttgttctcg 31235
             ||||||||||||||||||||||||||||||| |||| ||||||||||||||||||||||
Sbjct: 73222 gggccgggctctgctttaaaactggatggggttctcgggccacgtcgccccttgttctcg 73281

Query: 31236 gcctgcagagggaggctggcgggtgtgcgctgaactttgggccccgcgggagcagcacgg 31295
             ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Sbjct: 73282 gcctgcagagggaggctggcgggtgtgcgctgaactttgggccccgcgggagcagcacgg 73341

Query: 31296 tcaccattccacgggagcggctggcggctggcgtggagtacaccttcagcctgaccgtgt 31355
             |||||||||||||||| |||||||| |||||||||||||||||||||| |||||||
Sbjct: 73342 tcaccattccacgggaacggctggcagctggcgtggagtacaccttcagcctcaccgtgt 73401
                                      PvuII

Query: 31356 ggaaggccggccgcaaggaggaggccaccaaccagacggtgggtgccgcccgcccctcgg 31415
             ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Sbjct: 73402 ggaaggccggccgcaaggaggaggccaccaaccagacggtgggtgccgcccgcccctcgg 73461
```

FIG 2 Cont.

Exon 20—Homolog 1

```
Query: 33189 agccaggccgtgggagggcgcccccgagactgccacctgctcaccacccc-ctctgctcg 33247
             ||||||||||||||||||||||||||||||||||||||||||||||||||| |||||||||
Sbjct: 31282 agccaggccgtgggagggcgcccccgagactgccacctgctcaccaccccgctctgctcg 31341


Query: 33248 taggtctttggccatcaccctcccagagcccaacggcagcgcaacggggctcacagtctg 33307
             ||||||| ||||||||||||||||||||||||||||||||||| ||||||||||||||||
Sbjct: 31342 taggtctctggccatcaccctcccagagcccaacggcagcgcaatggggctcacagtctg 31401


Query: 33308 gctgcacgggctcaccgctagtgtgctcccagggctgctgcggcaggccgatccccagca 33367
             |||||||||||||||||||||||||||||| ||||||||||||||||||||||||||||
Sbjct: 31402 gctgcacgggctcaccgctagtgtgctccccggggctgctgcggcaggccgatccccagct 31461
                                       XmaI

Query: 33368 cgtcatcgagtactcgttggccctggtcaccgtgctgaacgaggtgagtgcagcctggga 33427
             |||||||||||||||| |||||||||||| |||||||||||||||||||||||||||||
Sbjct: 31462 cgtcatcgagtactcgctggccctggtcactgtgctgaacgaggtgagtgcagcctggga 31521
                 AatII
Query: 33428 ggggacgtcacatctgctgcatgcgtgcttgggaccaagacctgtacccctgcctggagc 33487
             |||||| |||||||||||||||||||||| |||||||||||||| ||||||||||||||
Sbjct: 31522 ggggacctcacatctgctgcatgcgtgctggggaccaagacctgttcccctgcctggagc 31581
```

Exon 20—Homolog 2

```
Query: 33216 gactgccacctgctcacca-ccccctctgctcgtaggtctttggccatcaccctcccaga 33274
             |||||||||||||||||| |||||||||||||||||| ||||||||||||||||||||
Sbjct: 75262 gactgccacctgctcaccacccccctctgctcgtaggtctctggccatcaccctcccaga 75321


Query: 33275 gcccaacggcagcgcaacggggctcacagtctggctgcacgggctcaccgctagtgtgct 33334
             |||||||||||||||| |||||||||||||||||||| ||||||||||||||||||||
Sbjct: 75322 gcccaacggcagcgcaatggggctcacagtctggctgcaccggctcaccgctagtgtgct 75381


Query: 33335 cccagggctgctgcggcaggccgatccccagcacgtcatcgagtactcgttggccctggt 33394
             ||| ||||||||||||||||||||||||||||||||||||||||||| ||||||||||
Sbjct: 75382 cccggggctgctgcggcaggccgatccccagcacgtcatcgagtactcgctggccctggt 75441


Query: 33395 caccgtgctgaacgaggtgagtgcagcctgggaggggacgtcacatctgctgcatgcgtg 33454
             ||| ||||||||||||||||||||||||||||||||||||| ||||||||||||||||||
Sbjct: 75442 cactgtgctgaacgaggtgagtgcagcctgggaggggacctcacatctgctgcatgcgtg 75501
```

FIG 2 Cont.

Exon 22—Homolog 1

```
Query: 36719 atgtgaagaggtgccttgtgtggtcggtgggctgcatcacgtggtccccaggtggaggcc 36778
             ||||||||||||||||||||||||||||||||||||||||||||||||||| |||||||||
Sbjct: 32576 atgtgaagaggtgccttgtgtggtcggtgggctgcatcacgtggtccccaagtggaggcc 32635

Query: 36779 ctgggtcatgcagagccacagaaaatgcttagtgaggaggctgtgggggtccagtcaagt 36838
             || ||||||||||||||||||||||||||||||||||| |||||||||||||||||||
Sbjct: 32636 ctcggtcatgcagagccacagaaaatgcttagtgaggagactgtgggggtccagtcaagt 32695

Query: 36839 gggctctccagctgcagggctgggggtgggagccaggtgaggacccgtgtagagaggagg 36898
             |||||||||||||||||||| ||||||||||||||||||||||||||||||||||||
Sbjct: 32696 gggctctccagctgcagggctggaggtgggagccaggtgaggacccgtgtagagaggagg 32755

Query: 36899 gcgtgtgcaaggagtggggccaggagcggggctggacactgctggctccacacaggggcc 36958
             ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Sbjct: 32756 gcgtgtgcaaggagtggggccaggagcggggctggacactgctggctccacacaggggcc 32815

Query: 36959 cagcagggagctcgtatgccgctcgtgcctgaagcagacgctgcacaagctggaggccat 37018
             ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Sbjct: 32816 cagcagggagctcgtatgccgctcgtgcctgaagcagacgctgcacaagctggaggccat 32875

Query: 37019 gatgctcatcctgcaggcagagaccaccgcgggcaccgtgacgcccaccgccatcggaga 37078
             ||||| ||||||||||||||||||||||||||||||||||||||||||||||||||||
Sbjct: 32876 gatgcgcatcctgcaggcagagaccaccgcgggcaccgtgacgcccaccgccatcggaga 32935
                FspI
                                                        NlaIII
Query: 37079 cagcatcctcaacatcacaggtgccgcggcccgtgccccatgccacccgcccgcccc 37135
             |||||||||||||||||||||||||||||||||||| ||||||||||||||||
Sbjct: 32936 cagcatcctcaacatcacaggtgccgcggcccgtgccccacgccacccgcccgcccc 32992
```

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FIG 2 Cont.

Exon 22—Homolog 2

```
Query: 36719 atgtgaagaggtgccttgtgtggtcggtgggctgcatcacgtggtccccaggtggaggcc 36778
             ||||||||||||||||||||||||| |||||||||||||||| ||||||||||||||||
Sbjct: 75778 atgtgaagaggtgccttgtgtggtcagtgggctgcatcacgtgttccccaggtggaggcc 75837

Query: 36779 ctgggtcatgcagagccacagaaaatgcttagtgaggaggctgtgggggtccagtcaagt 36838
             |||||||||||||||||||| ||||||||||||||||||||||||||||||||||||||
Sbjct: 75838 ctgggtcatgcagagccacaaaaaatgcttagtgaggaggctgtgggggtccagtcaagt 75897

Query: 36839 gggctctccagctgcagggctgggggtgggagccaggtgaggacccgtgtagagaggagg 36898
             ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Sbjct: 75898 gggctctccagctgcagggctgggggtgggagccaggtgaggacccgtgtagagaggagg 75957

Query: 36899 gcgtgtgcaaggagtggggccaggagcggggctggacactgctggctccacacaggggcc 36958
             ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Sbjct: 75958 gcgtgtgcaaggagtggggccaggagcggggctggacactgctggctccacacaggggcc 76017

Query: 36959 cagcagggagctcgtatgccgctcgtgcctgaagcagacgctgcacaagctggaggccat 37018
             ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Sbjct: 76018 cagcagggagctcgtatgccgctcgtgcctgaagcagacgctgcacaagctggaggccat 76077

Query: 37019 gatgctcatcctgcaggcagagaccaccgcgggcaccgtgacgcccaccgccatcggaga 37078
             ||||| ||||||||||||||||||||||||||||||||||||||||||||||||||||||
Sbjct: 76078 gatgcgcatcctgcaggcagagaccaccgcgggcaccgtgacgcccaccgccatcggaga 76137

Query: 37079 cagcatcctcaacatcacaggtgccgcggcccgtgccccatgccacccgcccgcccc 37135
             |||||||||||||||||||||||||||||||||||| ||||||||||||||||
Sbjct: 76138 cagcatcctcaacatcacaggtgccgcggcccgtgccccacgccacccgcccgcccc 76194
```

FIG 2 Cont.

Exon 23—Homolog 1

```
Query: 37663 cctccctgtctctgcactgacctcacgcatgtctgcaggagacctcatccacctggccag 37722
              ||||||||||||||||||||||||||| ||||||||||||||||||||||||||||||
Sbjct: 33404 cctccctgtctctgcactgacctcacgcctgtctgcaggagacctcatccacctggccag 33463

Query: 37723 ctcggacgtgcgggcaccacagccctcagagctgggagccgagtcaccatctcggatggt 37782
              ||| |||||||||||||||||| |||||||||||||||||||||||||| ||||||||
Sbjct: 33464 ctcagacgtgcgggcaccacagcgctcagagctgggagccgagtcaccatcgcggatggt 33523

Query: 37783 ggcgtcccaggcctacaacctgacctctgccctcatgcgcatcctcatgcgctcccgcgt 37842
              |||||||||||||||||||||||||||||||||| || |||| ||| ||||||||||||
Sbjct: 33524 ggcgtcccaggcctacaacctgacctctgccctcacgcccatcgtcacgcgctcccgcgt 33583

Query: 37843 gctcaacgaggagcccctgacgctggcgggcgaggagatcgtggcccagggcaagcgctc 37902
              ||||||||||||||||||||||||||| |||||||||||||||||||||||||||||
Sbjct: 33584 gctcaacgaggagcccctgacgctggcgggtgaggagatcgtggcccagggcaagcgctc 33643
```

```
Query: 37903 ggacccgcggagcctgctgtgctatggcggcgccccagggcctggctgccacttctccat 37962
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Sbjct: 33644 ggacccgcggagcctgctgtgctatggcggcgccccagggcctggctgccacttctccat 33703

                                        MscI
Query: 37963 ccccgaggctttcagcggggccctggccaacctcagtgacgtggtgcagctcatctttct 38022
              |||| |||||||||||| |||||| ||||||||||||||||||||||||||||||||||
Sbjct: 33704 cccctaggctttcagcagggccccggccaacctcagtgacgtggtgcagctcatctttct 33763

Query: 38023 ggtggactccaatccctttccctttggctatatcagcaactacaccgtctccaccaaggt 38082
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Sbjct: 33764 ggtggactccaatccctttccctttggctatatcagcaactacaccgtctccaccaaggt 33823

Query: 38083 ggcctcgatggcattccagacacaggccggcgcccagatccccatcgagcggctggcctc 38142
              |||||||||||| ||||||||||||||||||||||||||||||||||||||||||||||
Sbjct: 33824 ggcctcgatggcgttccagacacaggccggcgcccagatccccatcgagcggctggcctc 33883

Query: 38143 agagcgcgccatcaccgtgaaggtgcccaacaactcggactgggctgcccggggccaccg 38202
              |||||||||| ||||||||||||||||||||||||||||||||||||||||||||||||
Sbjct: 33884 agagcgcgcc-tcaccgtgaaggtgcccaacaactcggactgggctgcccggggccaccg 33942

Query: 38203 cagctccgccaactccgccaactccgttgtggtccagccccaggcctccgtcggtgctgt 38262
              |||||||||||||         ||||||||||||||||||||||||||||||||||||
Sbjct: 33943 cagctccgccaact---------ccgttgtggtccagccccaggcctccgtcggtgctgt 33993

Query: 38263 ggtcaccctggacagcagcaaccctgcggccgggctgcatctgcagctcaactatacgct 38322
              |||||||||||||||||||||||||||||| ||||||||||||||||||||||||||||
Sbjct: 33994 ggtcaccctggacagcagcaaccctgcggccgtgctgcatctgcagctcaactatacgct 34053

Query: 38323 gctggacggtgcgtgcagcgggtggggcacacgcggccccctggccttgttcttgggggg 38382
              |||||||||||| |||||||| ||||||||||||||||||||||||||||||||||||
Sbjct: 34054 gctggacggtgcatgcagcggttggggcacacgcggccccctggccttgttcttgggggg 34113
                        SphI
```

FIG 2 Cont.

Exon 23—Homolog 2

```
Query: 37663 cctccctgtctctgcactgacctcacgcatgtctgcaggagacctcatccacctggccag 37722
              ||||||||||||||||||||||||||| |||||||||||||||||||||||||||||
Sbjct: 76762 cctccctgtctctgcactgacctcacgcctgtctgcaggagacctcatccacctggccag 76821

Query: 37723 ctcggacgtgcgggcaccacagccctcagagctgggagccgagtcaccatctcggatggt 37782
              ||| |||||||||||||| |||| ||||||||||||||||||||||||  ||||||||
Sbjct: 76822 ctcagacgtgcgggcaccgcagcgctcagagctgggagccgagtcaccattgcggatggt 76881

Query: 37783 ggcgtcccaggcctacaacctgacctctgccctcatgcgcatcctcatgcgctcccgcgt 37842
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Sbjct: 76882 ggcgtcccaggcctacaacctgacctctgccctcatgcgcatcctcacgcgctcccgcgt 76941

Query: 37843 gctcaacgaggagcccctgacgctggcgggcgaggagatcgtggcccagggcaagcgctc 37902
              ||||||||||||||| |||||||||||||||||||| ||||||||||||||||||||
Sbjct: 76942 gctcaacgaggagcccgtgacgctggcgggcgaggagatcatggcccagggcaagcgctc 77001

Query: 37903 ggacccgcggagcctgctgtgctatggcggcgccccagggcctggctgccacttctccat 37962
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Sbjct: 77002 ggacccgcggagcctgctgtgctatggcggcgccccagggcctggctgccacctctccat 77061

Query: 37963 ccccgaggctttcagcggggccctggccaacctcagtgacgtggtgcagctcatctttct 38022
              |||| |||||||||||| |||||| |||||||||||||||||||||||||||||||
Sbjct: 77062 cccctaggctttcagcagggccccggccaacctcagtgacgtggtgcagctcgtctttct 77121

Query: 38023 ggtggactccaatccctttccctttggctatatcagcaactacaccgtctccaccaaggt 38082
              ||||||||||||||||||| ||||||||||||||||||||||||||||||||||||||
Sbjct: 77122 ggtggactccaatccctttctctttggctatatcagcaactacaccgtctccaccaaggt 77181

Query: 38083 ggcctcgatggcattccagacacaggccggcgcccagatccccatcgagcggctggcctc 38142
              |||||||||||| ||||||||||||||||||||||||||||||||||||||||||||
Sbjct: 77182 ggcctcgatggcgttccagacacaggccggcgcccagatccccatcgagcggctggcctc 77241

Query: 38143 agagcgcgccatcaccgtgaaggtgcccaacaactcggactgggctgccccggggccaccg 38202
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Sbjct: 77242 agagcgcgccatcaccgtgaaggtgcccaacaactcggactgggctgccccggggccaccg 77301

Query: 38203 cagctccgccaactccgccaactccgttgtggtccagccccaggcctccgtcggtgctgt 38262
              ||||||          ||||||||||||||||||||||||||||||||||||||||
Sbjct: 77302 cagctc---------cgccaactccgttgtggtccagccccaggcctccgtcggtgctgt 77352

Query: 38263 ggtcaccctggacagcagcaaccctgcggccgggctgcatctgcagctcaactatacgct 38322
              |||||||||||||||||||||||||| ||||| ||||||||||||||||||||||||
Sbjct: 77353 ggtcaccctggacagcagcaaccctgtggccgtgctgcatctgcagctcaactatacgct 77412

Query: 38323 gctggacggtgcgtgcagcgggtggggcacacgcggcccccctggccttgttcttgggggg 38382
              |||||||||||| ||||||||||||||||||||||||||||||||||||||||||||
Sbjct: 77413 gctggacggtgtgtgcagcgggtggggcacacgcggcccccctggccttgttcttgggggg 77472
```

FIG 2 Cont.

Exon 29 and 30—Homolog 1

```
Query: 41535 ttttgcgcttccggcgcctgctggtggctgagctgcagcgtggcttctttgacaagcaca 41594
             | ||||||||||||||||||||||||||||| |||||||||||||||||||||||||||||
Sbjct: 37269 tgttgcgcttccggcgcctgctggtggctg-gctgcagcgtggcttctttgacaagcaca 37327

Query: 41595 tctggctctccatatgggaccggccgcctcgtagccgtttcactcgcatccagagggcca 41654
             |||||||||||||||||||||||||||||| ||| ||||||||||||||||||||||||
Sbjct: 37328 tctggctctccatatgggaccggccgcctcggagctgtttcactcgcatccagagggcca 37387

Query: 41655 cctgctgcgttctcctcatctgcctcttcctgggcgccaacgccgtgtggtacggggctg 41714
             |||||||||||||||||||| ||||||||||||||||||||||||||||||||||||||
Sbjct: 37388 cctgctgcgttctcctcatctgtctcttcctgggcgccaacgccgtgtggtacggggctg 37447

Query: 41715 ttggcgactctgcctacaggtgggtgccgtaggggtcggggcagcctcttcctgcccagc 41774
             |||| ||||||||||||||||||||||||||||||| |||||||||||||||||||
Sbjct: 37448 ttggagactctgcctacaggtgggtgccgtaggggtcgggacagcctcttcctgcccagc 37507

Query: 41775 ccttcctgcccctcagcctcacctgtgtggcctcctctcctccacacagcacggggcatg 41834
             |||||||||||||||||||||||||||||||||||||||||||||||||||||||||| ||
Sbjct: 37508 ccttcctgcccctcagcctcacctgtgtggcctcctctcctccacacagcacggggcgtg 37567

Query: 41835 tgtccaggctgagcccgctgagcgtcgacacagtcgctgttggcctggtgtccagcgtgg 41894
             |||||||||||| ||||||||||||||||||||||||||||||||||||||||||||||
Sbjct: 37568 tgtccaggctgaacccgctgagcgtcgacacagtcgctgttggcctggtgtccagcgtgg 37627

Query: 41895 ttgtctatcccgtctacctggccatccttttctcttccggatgtcccggagcaaggtgg 41954
             |||||||||||||||||||||||||||| ||||||||||||||||||||||||||||||
Sbjct: 37628 ttgtctatcccgtctacctggccatcctctttctcttccggatgtcccggagcaaggtgg 37687

                                                                AvrII or BlnI
Query: 41955 gctggggctggggacccgggagtactgggaatggagcctgggcctcggcaccatgcctag 42014
             |||||||||||||||||||||||||||||||||||||||||||||||||||||||| ||
Sbjct: 37688 gctggggctggggacccgggagtactgggaatggagcctgggcctcggcaccatgcccag 37747

Query: 42015 ggccgccactttccagtgctgcagccagagggaaaggcgtccaccaaaggctgctcggga 42074
             ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
     Sbjct: 37748 ggccgccactttccagtgctgcagccagagggaaaggcgtccaccaaaggctgctcggga 37807
```

FIG 2 Cont.

Exon 29 and 30—Homolog 2

```
Query: 41535 ttttgcgcttccggcgcctgctggtggctgagctgcagcgtggcttctttgacaagcaca 41594
             | ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Sbjct: 80620 tgttgcgcttccggcgcctgctggtggctgagctgcagcgtggcttctttgacaagcaca 80679

Query: 41595 tctggctctccatatgggaccggccgcctcgtagccgtttcactcgcatccagagggcca 41654
             |||||||||||||||||||||||| ||||||||| ||||||||||||||||||||||||
Sbjct: 80680 tctggctctccatatgggaccggccacctcgtagctgtttcactcgcatccagagggcca 80739

Query: 41655 cctgctgcgttctcctcatctgcctcttcctgggcgccaacgccgtgtggtacggggctg 41714
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Sbjct: 80740 cctgctgcgttctcctcatctgcctcttcctgggcgccaacgccgtgtggtacggggctg 80799

Query: 41715 ttggcgactctgcctacaggtgggtgccgtaggggtcggggcagcctcttcctgcccagc 41774
             |||| ||||||||||||||||||||||||||||||||| ||||||||||||||||||
Sbjct: 80800 ttggtgactctgcctacaggtgggtgccgtaggggtcgggacagcctcttcctgcccagc 80859

Query: 41775 ccttcctgcccctcagcctcacctgtgtggcctcctctcctccacacagcacggggcatg 41834
             ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Sbjct: 80860 ccttcctgcccctcagcctcacctgtgtggcctcctctcctccacacagcacggggcatg 80919

Query: 41835 tgtccaggctgagcccgctgagcgtcgacacagtcgctgttggcctggtgtccagcgtgg 41894
             ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Sbjct: 80920 tgtccaggctgagcccgctgagcgtcgacacagtcgctgttggcctggtgtccagcgtgg 80979

Query: 41895 ttgtctatcccgtctacctggccatccttttctcttccggatgtcccggagcaaggtgg 41954
             |||||||||||||||||||||||| ||||||||||||||||||||||||||||||||
Sbjct: 80980 ttgtctatcccgtctacctggccatcctctttctcttccggatgtcccggagcaaggtgg 81039

Query: 41955 gctggggctggggacccgggagtactgggaatggagcctgggcctcggcaccatgcctag 42014
             |||||||||||||||||||||||||||||||||||||||||||||||||||||||| ||
Sbjct: 81040 gctggggctggggacccgggagtactgggaatggagcctgggcctcggcaccatgcccag 81099

Query: 42015 ggccgccactttccagtgctgcagccagagggaaaggcgtccaccaaaggctgctcggga 42074
             ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Sbjct: 81100 ggccgccactttccagtgctgcagccagagggaaaggcgtccaccaaaggctgctcggga 81159
```

FIG 3

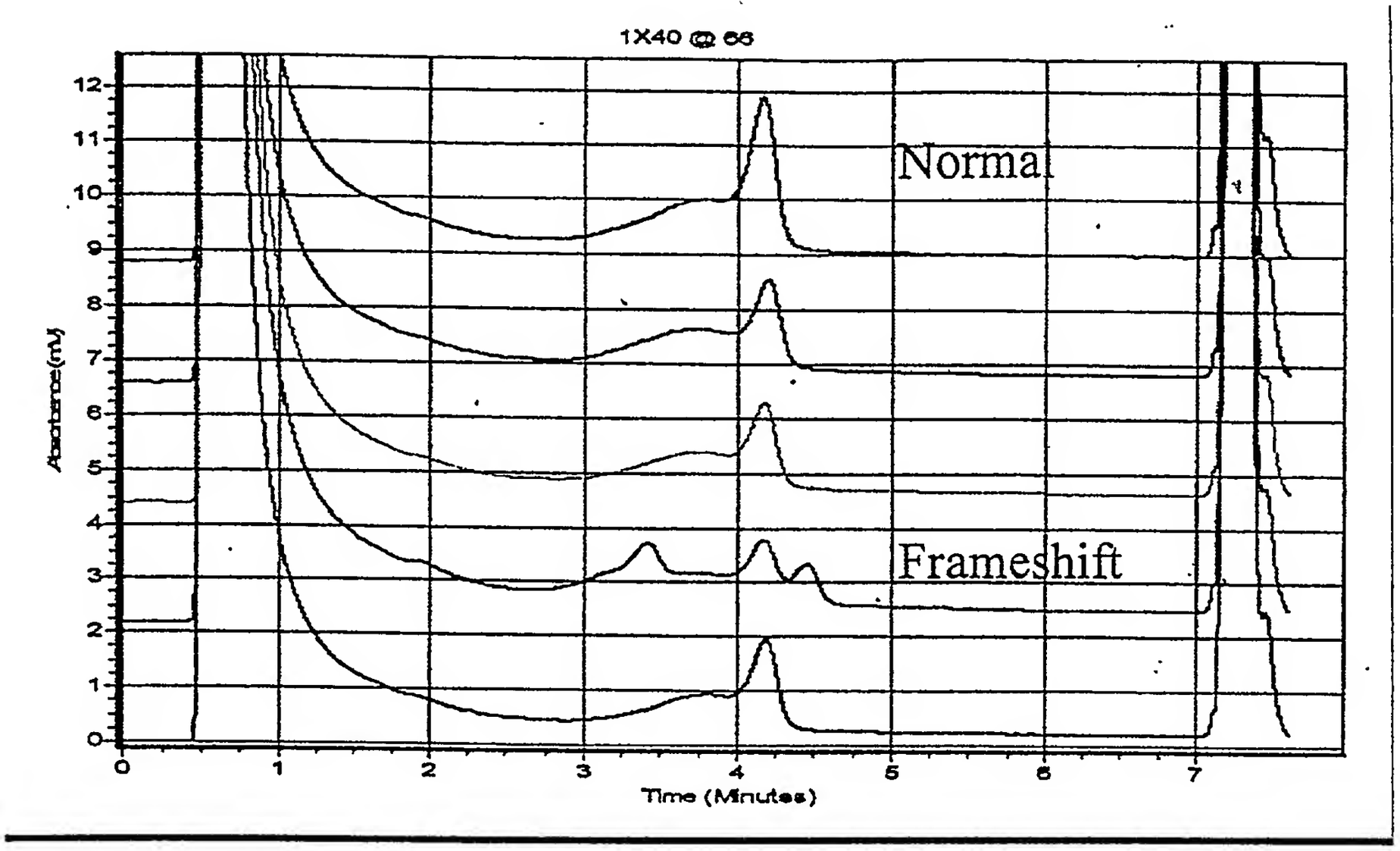

1X40 @ 66
Normal
Frameshift
Absorbance(mV)
Time (Minutes)
0
1
2
3
4
5
6
7
8
9
10
11
12

FIG 4

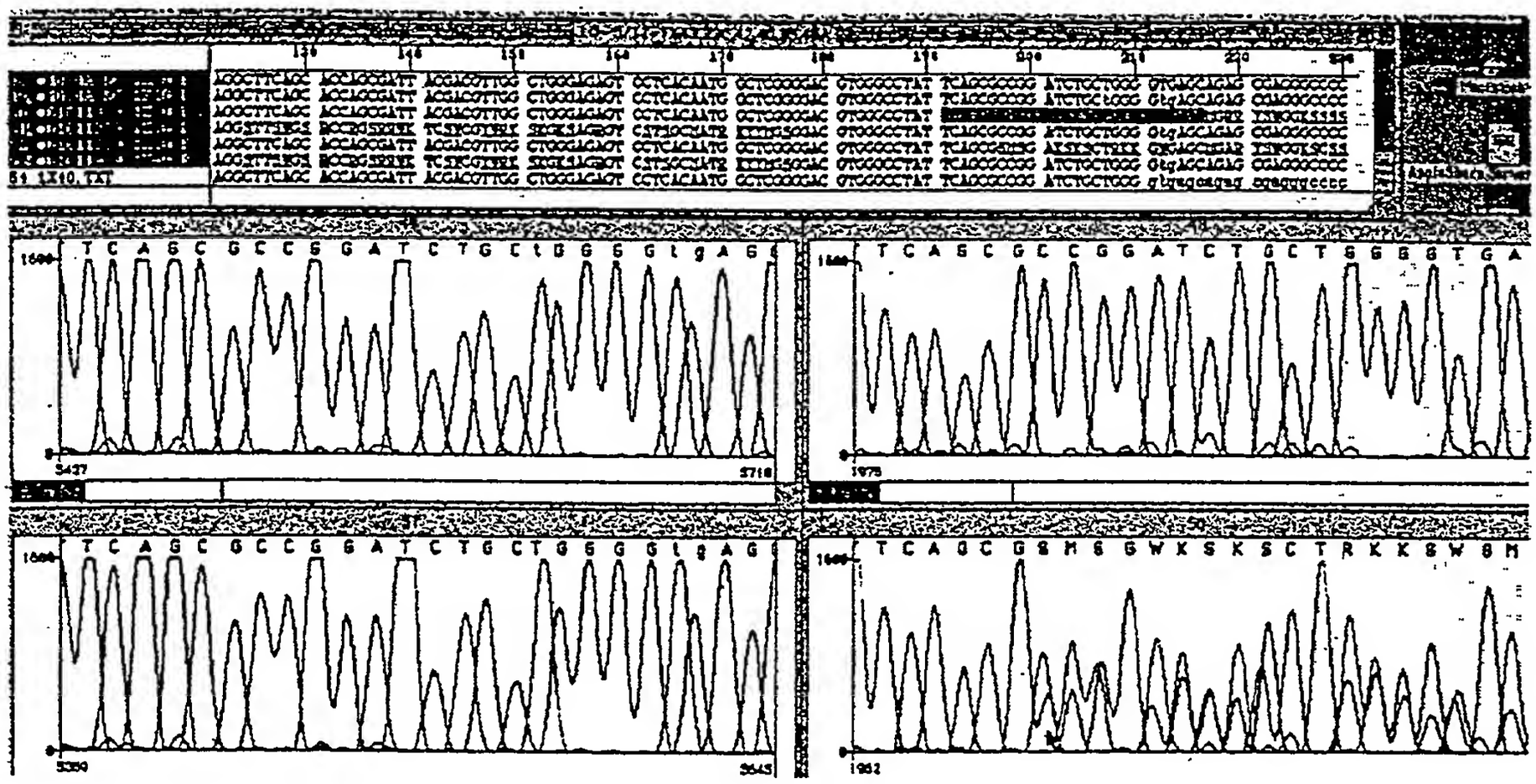


FIG 5

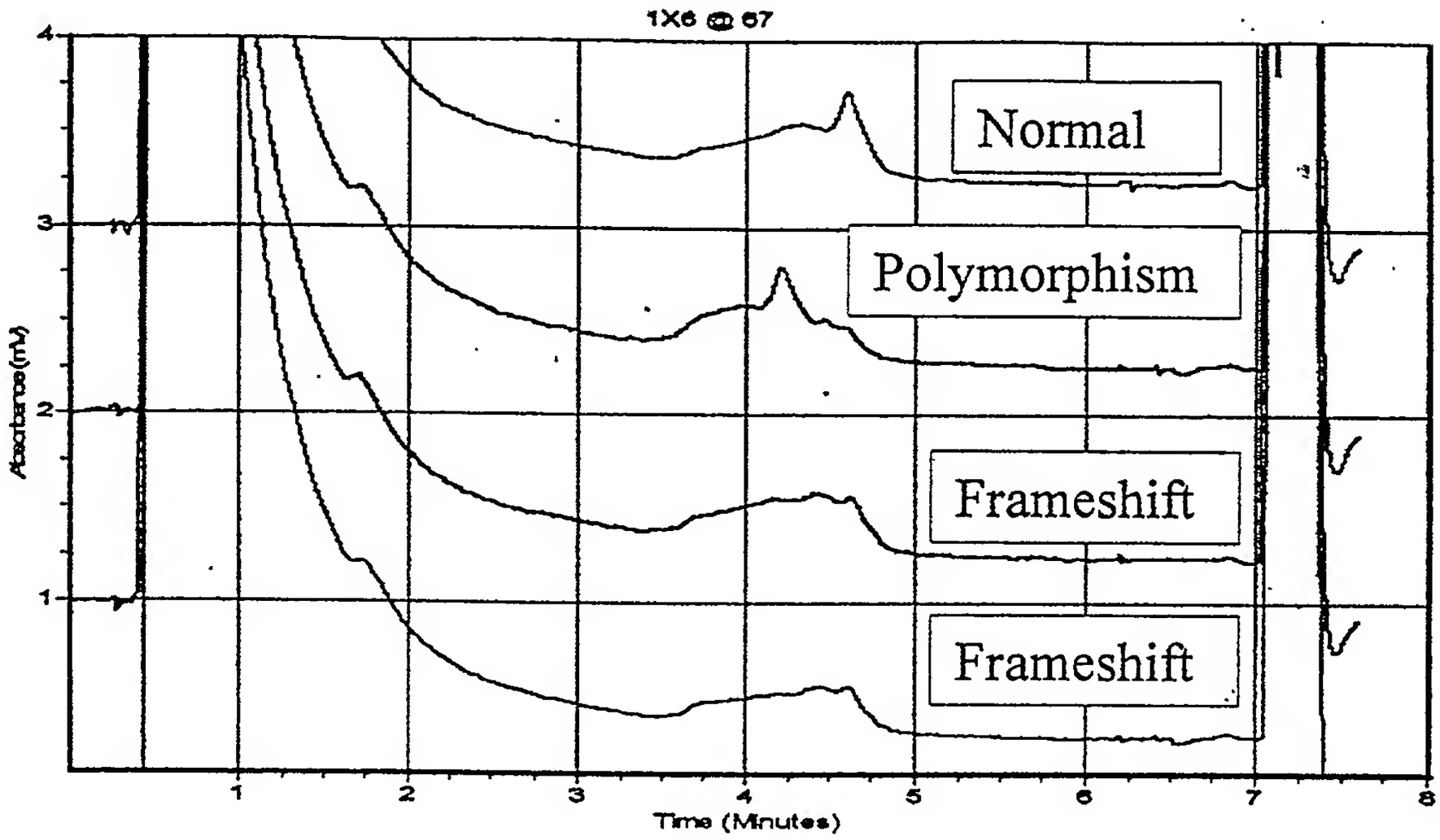

1X6 @ 67
Absorbance(mV)
Time (Minutes)
Normal
Polymorphism
Frameshift
Frameshift

FIG 6

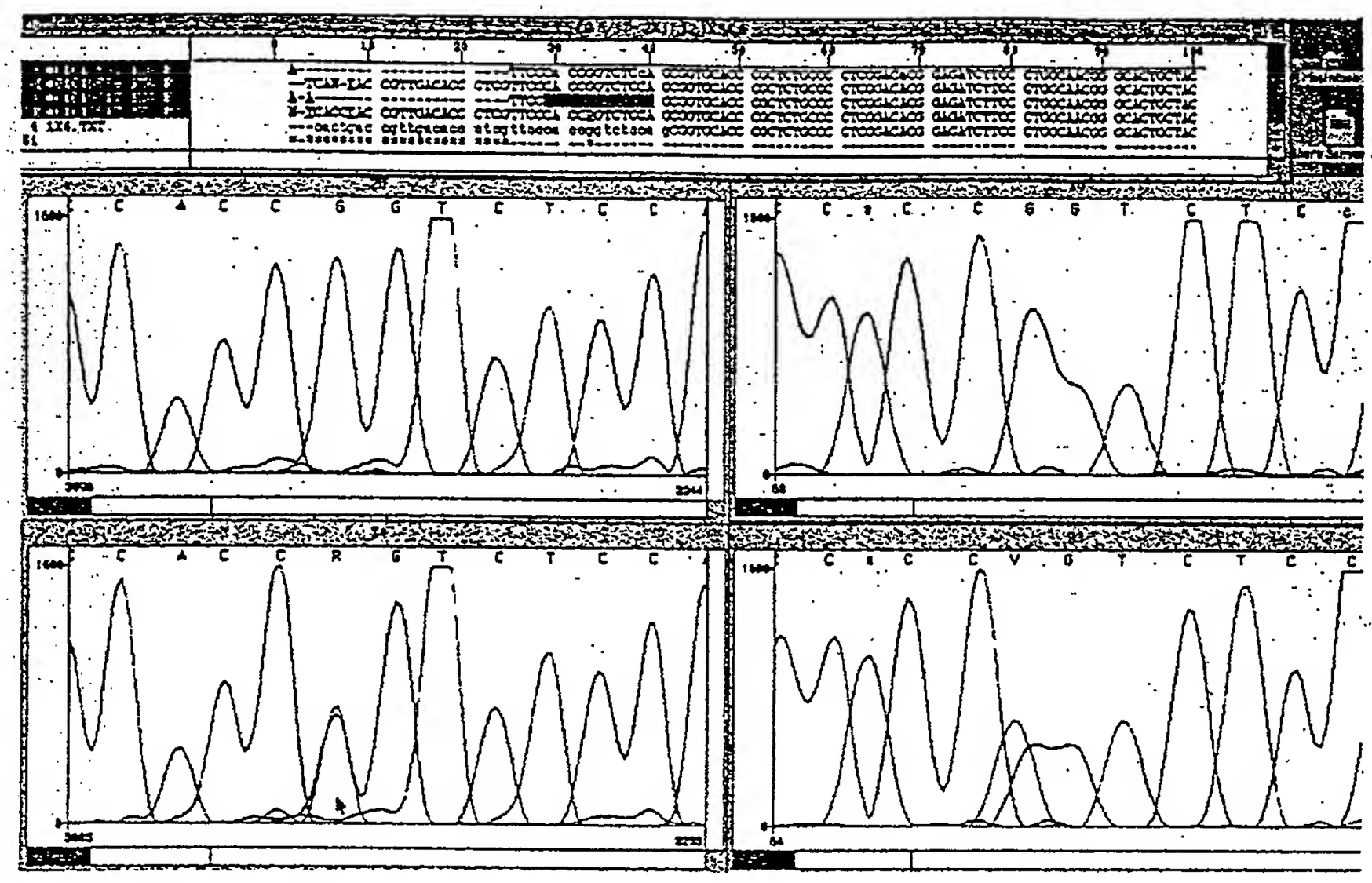


FIG 7

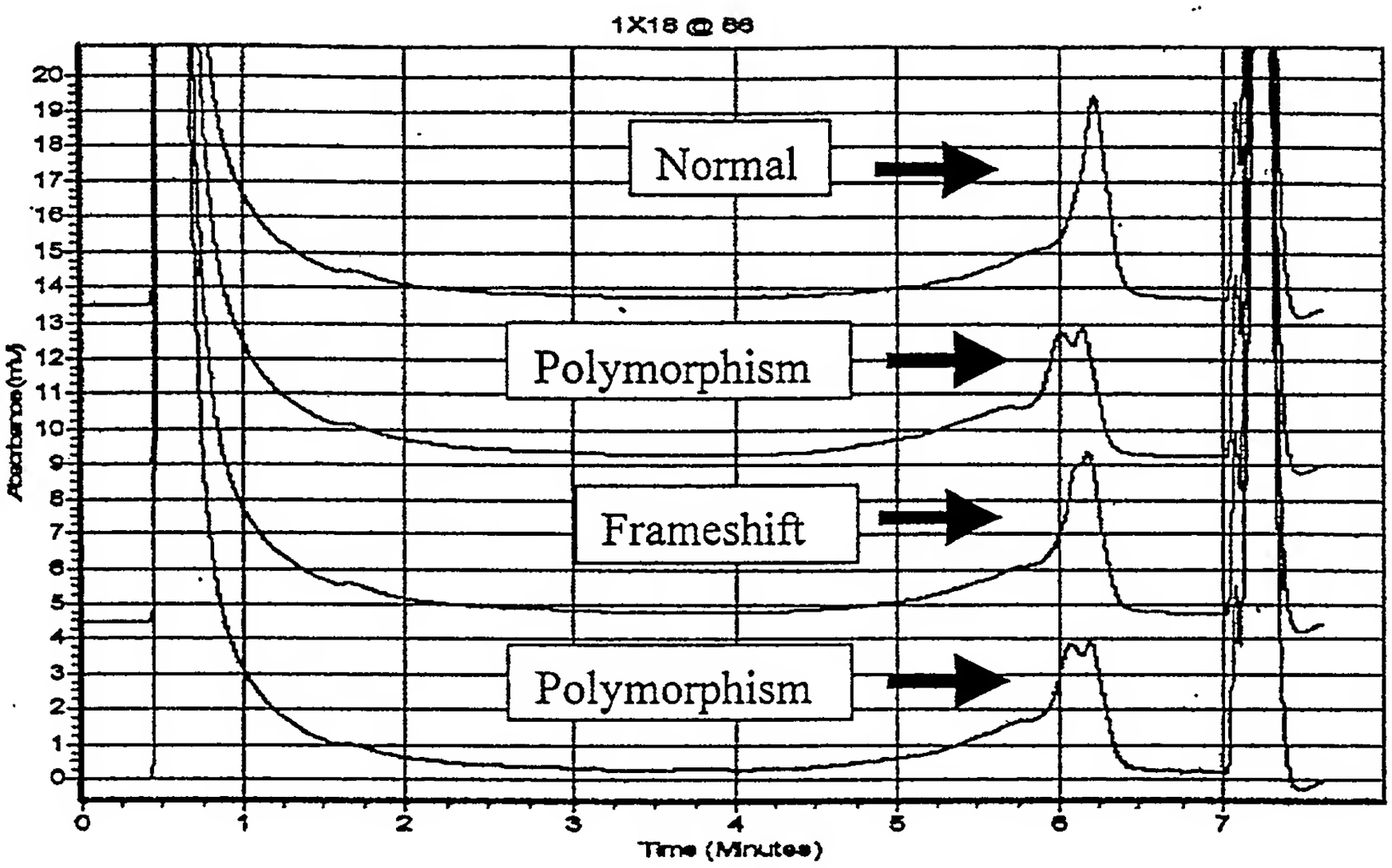

1X18 @ 86
Normal
Polymorphism
Frameshift
Polymorphism
Absorbance (mV)
Time (Minutes)
0
1
2
3
4
5
6
7

FIG 8

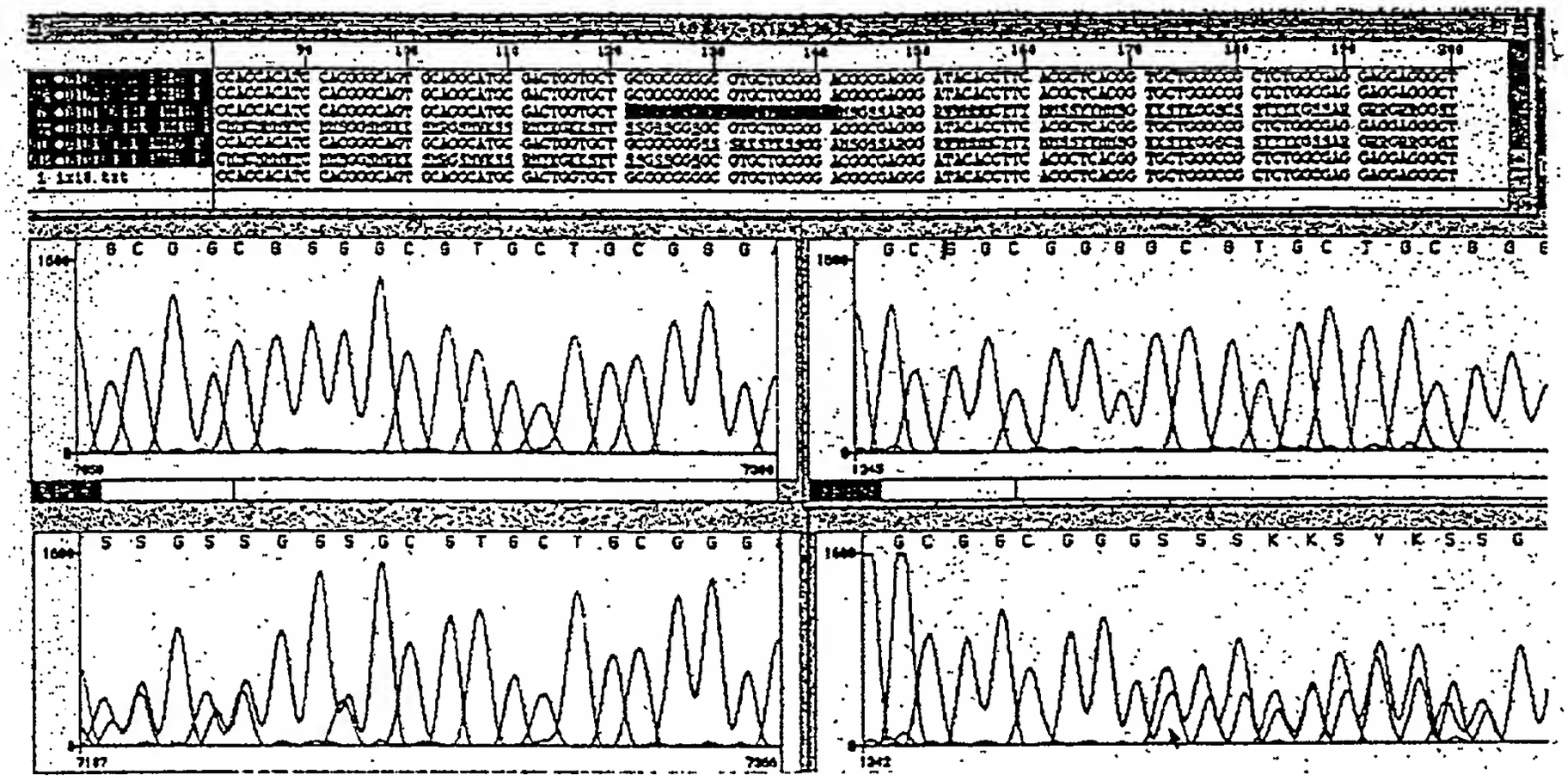


FIG 9

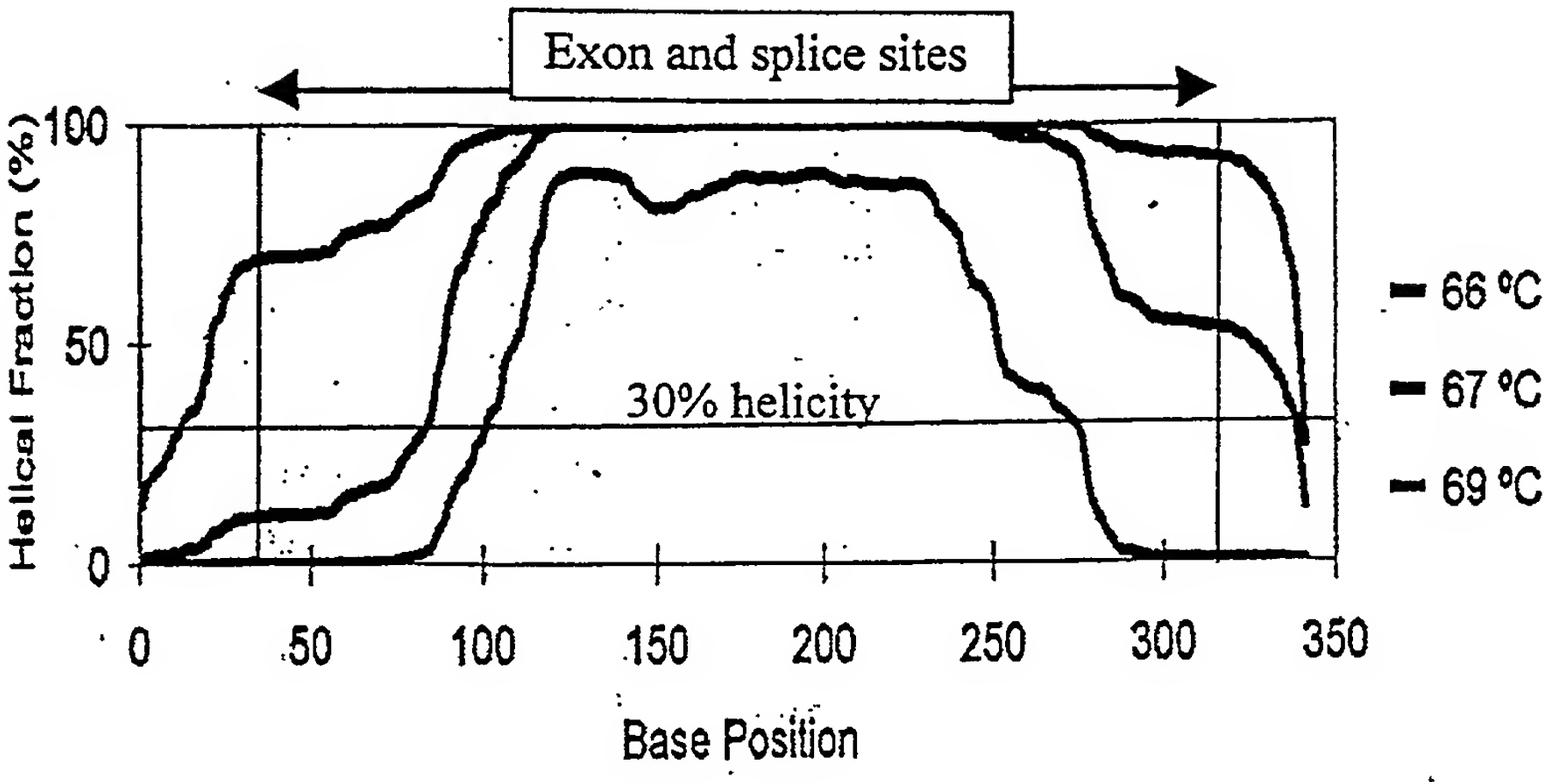

Exon and splice sites
Helical Fraction (%)
100
50
0
30% helicity
66 °C
67 °C
69 °C
0
50
100
150
200
250
300
350
Base Position

FIG 10 A

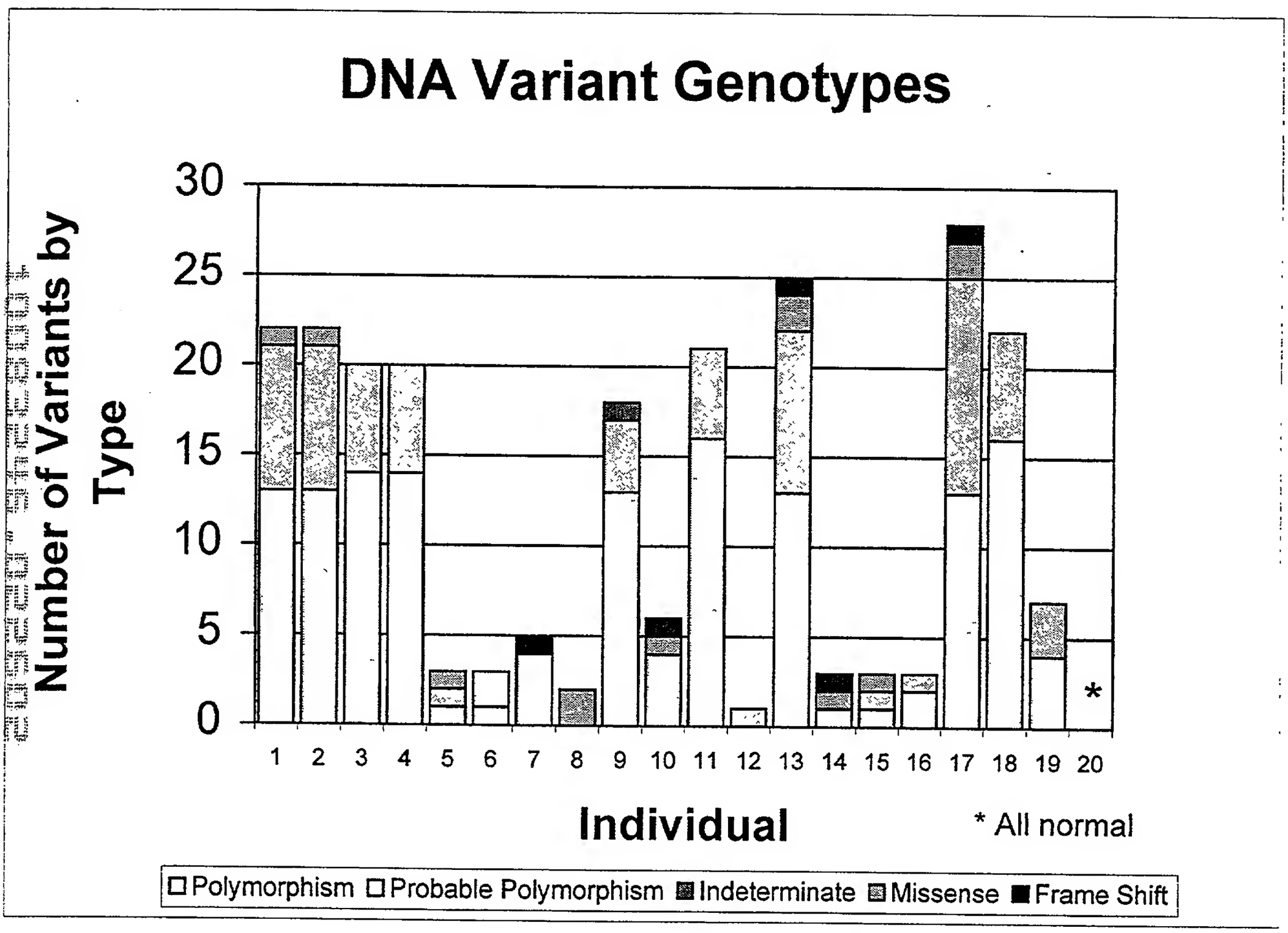

DNA Variant Genotypes
Number of Variants by Type
30
25
20
15
10
5
0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
*
Individual
* All normal
Polymorphism
Probable Polymorphism
Indeterminate
Missense
Frame Shift

FIG 10 B

	Polymorph	Probable	Missense	Frame Shi	Indeterminate	
1	13	8	1	0	0	22
2	13	8	1	0	0	22
3	14	6	0	0	0	20
4	14	6	0	0	0	20
5	1	1	1	0	0	3
6	1	2	0	0	0	3
7	4	0	0	1	0	5
8	0	0	2	0	0	2
9	13	4	0	0	1	18
10	4	0	1	1	0	6
11	16	5	0	0	0	21
12	0	1	0	0	0	1
13	13	9	2	1	0	25
14	1	0	1	1	0	3
15	1	1	1	0	0	3
16	2	1	0	0	0	3
17	13	12	2	1	0	28
18	16	6	0	0	0	22
19	4	3	0	0	0	7
20	0	0	0	0	0	0

FIG 11

Gene		Exon	Ampli-con	Temp	PC Ret Time	PC Height	NC Ret Time	NC Height
1	x	1						
1	x	2		66	2.25-6.5	0.8-3.2	2-6.5	0.9-3.6
1	x	2		67	0.7-5.8	0.8-3.2	0.7-5.8	1-4
1	x	3		56	4.2-6.8	1-4	4-6.75	1.1-4.4
1	x	3		57	3.5-6.5	0.7-2.8	4-6.5	1-4
1	x	4		66	2-6.8	1-4	2-6.8	0.8-3.2
1	x	4		67	1.5-6	0.5-2.0	1.5-6	1.1-4.4
1	x	5	A	66	2.6-4.6	1.3-5.4	2.7-4.7	1.3-5.2
1	x	5	B	67	2-6.5	0.4-7.0	3-6.5	0.5-4.6
1	x	5	C	67	3-6.5	1-4	3-6.5	1.2-4.8
1	x	5	C	68	1.7-5.8	0.7-2.8	2.5-5.8	1-4
1	x	6		66	3.5-5.9	0.3-1.5	3.9-5.9	1.0-4.2
1	x	6		67	2.5-5.4	0.5-2.0	3.4-5.4	1-4.2
1	x	6		68	2.2-4.8	0.3-1.4	2.8-4.8	0.7-3.0
1	x	7		66	2.7-6.25	0.5-2.0	3-6.25	0.6-2.4
1	x	7		68	1.5-5	0.9-3.6	1.5-5	0.6-2.4
1	x	8		68	1.5-5	1.3-5.2	1.7-5	1-4
1	x	9		67	3.5-6.5	0.5-2.0	3.5-6.8	0.25-2.0
1	x	10		65	2.5-6.5	0.9-3.6	3-6.5	1.9-7.6
1	x	10		67	1.5-5	1.5-6	1.5-5	2-8
1	x	11	A	67	1.5-6.5	0.7-2.8	2-6.5	2-8
1	x	11	A	68	1.5-5.5	0.8-3.2	2-5.8	1.3-5.2
1	x	11	B	66	3-6.8	1-4	3-6.8	1-4
1	x	11	B	67	2-6	1.5-6	2-6	1.2-4.8
1	x	11	C	66	4.2-6.2	1.5-6	4.2-6.2	2.5-10.2
1	x	11	C	67	3.6-5.6	1.7-7	3.6-5.6	2.3-9.2
1	x	11	C	68	2.9-4.9	1.1-4.6	2.8-4.8	1.7-6.8
1	x	12		63	4.4-6.6	0.6-2.4	4.7-6.7	1-4
1	x	12		65	2.8-4.8	0.4-1.6	2.6-5.4	0.4-1.8
1	x	13						
1	x	14		66	1.5-5.5	0.6-2.4	0.7-5.5	0.6-2.4
1	x	15	A	67	2.5-6.5	0.8-3.2	2.5-6.5	1-4
1	x	15	A	68	1.5-5.75	1-4	1.5-5.75	1.2-4.8
1	x	15	B	67	2-5.75	0.5-2.0	2.75-5.75	1-4
1	x	15	B	68	1.5-5.25	0.6-2.4	2.5-5.5	0.9-3.6
1	x	15	C	68	2-6.5	0.4-1.6	2-6.5	0.8-3.2
1	x	15	C	69	1.5-6	0.5-2.0	1.5-6	0.75-3.0
1	x	15	D	67	3.75-7.25	1.5-6	3.75	7.25
1	x	15	D	68	3-6.5	1-4	3-6.5	1.2-4.8
1	x	15	E	65	3-6.5	1-4	3-6.5	1.5-6
1	x	15	E	66	2-6	0.8-3.2	2-6	1.3-5.2
1	x	15	F	65	4-7	1.4-5.6	3.75-7	1.2-4.8
1	x	15	F	66	3-6.5	1-4	3-6.5	1-4
1	x	15	F	67	1.5-5.75	1.3-5.2	1.5-5.75	1-4
1	x	15	G	66	3-6	0.8-3.2	3-6	1.1-4.4
1	x	15	G	68	1.5-4.5	1-4	1.5-4.5	1.5-6

FIG 11 Cont.

1	x	15	H	65	2-6.5	1.5-6	2-6.5	1.5-6
1	x	15	H	66	1.5-5.5	1-4	1.5-5.75	1-4
1	x	15	I	66	3-7	2-8	3-7	1.8-7.2
1	x	15	I	67	2.5-6.5	1.5-6	2.5-6.5	1.5-6
1	x	15	J	64	4-7.5	2.2-8.8	4-7.5	2-8
1	x	15	J	65	4-7	2-8	4-7	1.5-6
1	x	15	J	66	3-6.5	1.5-6	2-6.5	1.1-4.4
1	x	15	K	65	3.5-6.5	1-4	3.75-6.5	0.8-3.2
1	x	15	K	66	3-6.5	0.7-2.8	3.5-6.5	0.6-3.2
1	x	15	K	67	2-6	0.6-2.4	2-5.5	0.5-2.0
1	x	15	L					
1	x	15	M	66	4.5-7	1-4	4.5-7	1.5-6
1	x	15	M	67	4-6.75	1-4	4-6.75	1.3-5.2
1	x	15	N					
1	x	16		67	1.5-5.5	2.25-9	2.0-5.5	3-13
1	x	17		65	2.5-6	1.5-6	2.5-6	1.75-7
1	x	17		66	1.5-5	1.25-5	1.5-5	1.75-7
1	x	18		66	3-6.5	2-8	3-6.5	3.25-13
1	x	18		67	4-6.4	3.8-16	4.25-6.25	6.2-24.8
1	x	18		68	1.5-5	2.5-10	1.5-5	2.75-11
1	x	19		67	3-6.5	1.5-6	3-6.5	3-12
1	x	19		68	3.0-6.5	1.5-6	3-6.5	3-12
1	x	20		65	3.5-6.5	2-8	3.5-6.5	2.25-9
1	x	20		66	2.5-6	1.25-5	2.5-6	1.75-7
1	x	20		67	1.5-5.5	1.25-5	1.5-5.5	1.75-7
1	x	21		65	3-7	1.5-6	3-7	4-16
1	x	21		67	1.5-5.5	2.25-9	1.5-5.5	4.5-18
1	x	22		66	4-7.5	2-8	4-7	2-8
1	x	22		67	3-7.25	1.5-6	3.5-6.5	1.5-6
1	x	23	A	65	3.5-6.5	0.75-3.0	3.5-6.5	1.5-6.0
1	x	23	A	66	2.5-6.0	0.5-2.0	2.5-6.0	1.25-5.0
1	x	23	A	68	1.5-4.5	2.5-10.0	1.5-4.5	2.5-10.0
1	x	23	B	63	3.5-7.25	1.5-6	3.5-7.25	1.5-6
1	x	23	B	66	1.5-6.5	0.9-3.5	1.5-6.5	1-4
1	x	23	B	67	1.25-5.5	1-4	1.25-5.5	1-4
1	x	23	C	61	3-6.25	1.5-6	3-6.25	3.25-13
1	x	23	C	66	1.5-5	2.25-9	2.5-5	4.25-17
1	x	23	C	67	1.5-5	2.75-11	2-5	5.5-22
1	x	24		65	2.5-6.0	0.5-2.0	2.5-6.0	0.6-3.0
1	x	25		65	2-6	0.7-4	2-6	0.7-4
1	x	25		67	1.5-4.5	2-8	1.5-4.5	2-8
1	x	26		64	2.5-6	0.9-3.6	2.5-6	0.9-3.6
1	x	26		66	1.5-4.5	1.75-7	1.5-4.5	1.75-7
1	x	27		65	3.5-6.7	1.5-6	3.5-6.7	1.5-6
1	x	27		66	2.5-6	2-8	2-5.7	1.25-5
1	x	28		66	1.5-5.75	1-4	1.5-5.75	1-4
1	x	29		65	1.5-6.25	1.5-6	1.5-6.25	3-12
1	x	29		66	1.5-5.25	1.5-6	1.5-5.25	2.5-8.5
1	x	30						

FIG 11 Cont.

1	x	31		66	3-6.5	2.5-10	3-6.5	1-4
1	x	31		68	1.5-5.5	1.5-6	1.5-5.5	0.5-2
1	x	32		62	2-6.5	1.25-5.0	2-6.5	3.5-14
1	x	33		64	4.2-6.2	1.4-6	4.3-6.3	1.5-6
1	x	33		67	2.5-4.7	0.8-3.5	2.7-4.7	1.2-4.8
1	x	34						
1	x	34						
1	x	35		64	4.3-6.6	1.4-5.5	4.5-6.5	2.4-9.5
1	x	35		66	2.6-5.1	1.1-4.4	3.1-5.1	1.75-7
1	x	36		66	3.3-5.7	0.5-2.0	3.6-5.6	1-4
1	x	36		67	2.7-5.1	0.6-2.5	3.1-5.1	1.1-4.4
1	x	37		64	3-5.75	0.65-2.6	3.7-5.7	1.1-4.5
1	x	37		66	2-4.75	0.9-3.6	2.7-4.7	1-4
1	x	38		65	3.5-6.5	1.1-4.5	4.3-6.3	1.6-6.5
1	x	38		66	3-5.75	0.7-3.0	3.5-5.5	1-4
1	x	39		66	1.5-4.5	1.1-4.6	2-4.6	1.25-3.0
1	x	39		67	1.5-4	1.25-3.0	1.5-4	0.7-3.0
1	x	40		66	1.5-5.5	0.6-2.5	3.25-5.25	0.7-3.0
1	x	41		67	2.5-5.75	0.9-3.6	3.75-5.75	1.1-4.4
1	x	42		70	2.75-5.75	0.5-2.0	3-5.8	0.3-1.2
1	x	42		71	2.5-4.5	0.7-3.0	2.6-4.6	0.6-2.4
1	x	43		67	4-6.75	0.4-1.6	4-6.75	0.6-2.4
1	x	43		68	3.75-6.5	0.4-1.6	3.75-6.5	0.6-2.4
1	x	43		70	2.25-5.25	0.25-2	2.25-5.25	0.6-2.4
1	x	44		66	3.25-5.75	0.5-2.0	3.7-5.7	0.8-3.2
1	x	45		65	3.5-6.25	0.4-1.6	4.1-6.1	0.9-3.6
1	x	45		66	2.5-5.5	0.4-1.6	3.5-5.5	0.8-3.2
1	x	46	A	66	4.25-6.5	0.4-1.6	4.4-6.4	0.8-3.2
1	x	46	A	67	3.25-5.25	0.3-1.2	3.5-5.5	0.5-2.0
1	x	46	B	65	4-6.75	1-4	4-6.75	1.2-4.8
1	x	46	B	68	1.75-4.75	1.3-5.2	1.75-4.75	1.5-6
2	x	1	A	70	3-6	1.5-6	3-6	1-4
2	x	1	A	71	2-5.75	0.6-2.4	2-5.75	0.9-3.6
2	x	1	A	72	1.5-5.25	0.5-3.0	1.5-5.25	0.5-2
2	x	1	B	67	2.5-6.5	0.6-2.5	2.5-6.5	0.6-2.5
2	x	1	B	70	1.5-4.5	0.7-3	1.5-4.5	1-4
2	x	1	B	71	1-4	0.5-2	1-4	0.7-3
2	x	1	C	69	2.5-6.5	1.25-5	2.5-6.5	1-4
2	x	1	C	70	1.5-6.5	0.8-2.5	1.5-6.5	0.8-3.5
2	x	1	C	71	1.5-5.75	0.8-3.5	1.5-5.75	0.8-3.5
2	x	2		58	2.5-4.5	1.2-5.0	3.2-5.2	1.4-5.6
2	x	3		58	4.7-6.9	2.9-11.6	4.9-6.9	3.5-14
2	x	3		59	4.4-6.9	2.1-8.4	4.7-6.7	2.0-8.0
2	x	3		60	3.5-6.1	1.3-5.2	3.9-5.9	1.6-6.4
2	x	4		60	3.4-6.1	1.7-7.0	4.1-6.1	0.9-3.8
2	x	5		58	4.5-6.5	2.3-9.2	4.6-6.6	2.3-9.4
2	x	5		59	3.9-6.2	1.6-6.6	4.3-6.3	1.7-6.8
2	x	6		57	1.5-6.25	1.5-6	1.5-6.25	2-8
2	x	7		53	3.4-6.6	1.2-5.0	3.3-6.6	1.0-4.0

FIG 11 Cont.

2	x	7		56	2.5-4.5	2.5-10.2	2.6-5.2	1.1-4.4
2	x	8		54	3.7-6.2	1.5-6	3.7-6.2	5.5-22
2	x	8		58	3-6	0.8-3.2	2.5-6	4-16
2	x	9		54	3-6.5	0.5-2.0	3.5-6.5	1-4
2	x	9		57	1.5-4.75	0.5-2	1.5-4.75	0.5-2.0
2	x	10						
2	x	10						
2	x	11		58	2.5-6.75	2.3-9.2	2.5-6.75	2-8
2	x	11		59	1.75-6.5	1.5-6	1.5-6.5	1-4
2	x	12		60	1.5-5.75	0.7-2.8	1.5-5.5	0.8-3.2
2	x	13		60	3-6.2	1.2-4.8	4.2-6.2	1.2-5
2	x	13		61	2.5-5.5	1.2-5	2.5-5.5	0.9-4.0
2	x	14		63	2.5-4.5	1.1-4.4	3.2-5.2	2.5-10.0
2	x	15		60	2-6.5	0.9-3.6	2-6.5	1-4
2	x	15		61	1.5-6	1.3-5.2	1.5-6	1.5-6

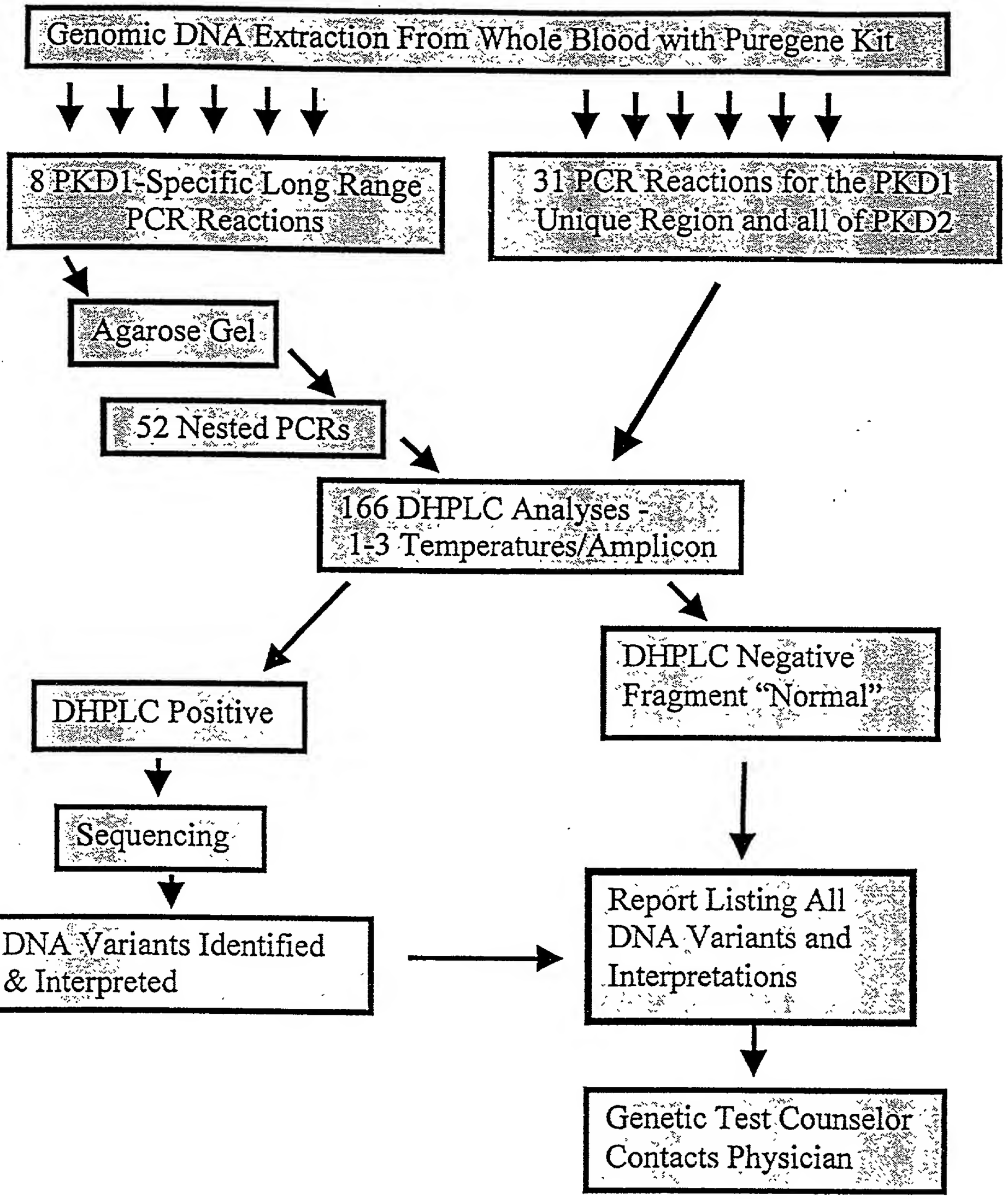
FIG 12

Verified By		Exon	Ampli-con	Long Range PCR	Mg	DMSO	Anneal Temp		Initial Denatur Temp	Initial Denature Time	# Cycles	Cycle Denatur Temp	Cycle Denatur Time	Anneal Temp	Anneal Time	Ext Temp	Ext Time	Final Ext Temp	Final Ext Time	LR Dilution		Exon	Ampli-con	TC condition	Plate set
	1	1		L1	1.5	7.50%	60		94	10 min	35	94	20 sec	60	20 sec	72	45 sec	72	5 min	10^{-4}	1	1		1	1
	18	12		L3	1.5	0	55		94	10 min	35	94	30 sec	55	30 sec	72	30 sec	72	10 min	-5	18	12		2	2
1	2	2		L2	1	0%	61		94	10 min	35	94	30 sec	61	30 sec	72	30 sec	72	10 min	-5	2	2		3	3A
	4	4		L2	1	7.50%	61		94	10 min	35	94	30 sec	61	30 sec	72	30 sec	72	10 min	-5	4	4		3	3A
	5	5	A	L2	1	7.50%	61		94	10 min	35	94	30 sec	61	30 sec	72	30 sec	72	10 min	-5	5	5	A	3	3A
	6		B	L2	1	7.50%	61		94	10 min	35	94	30 sec	61	30 sec	72	30 sec	72	10 min	-5	6		B	3	3A
	7		C	L2	1	7.50%	61		94	10 min	35	94	30 sec	61	30 sec	72	30 sec	72	10 min	-5	7		C	3	3A
	8	6		L2	1	7.50%	61		94	10 min	35	94	30 sec	61	30 sec	72	30 sec	72	10 min	-5	8	6		3	3A
	10	8		L3	1.5	0	61		94	10 min	35	94	30 sec	61	30 sec	72	30 sec	72	10 min	-5	10	8		3	3B
	11	9		L3	1.5	0	61		94	10 min	35	94	30 sec	61	30 sec	72	30 sec	72	10 min	-5	11	9		3	3B
	12	10		L3	1.5	0	61		94	10 min	35	94	30 sec	61	30 sec	72	30 sec	72	10 min	-5	12	10		3	3B
	15		C	L3	1.5	0	61		94	10 min	35	94	30 sec	61	30 sec	72	30 sec	72	10 min	-5	15		C	3	3B
	9	7		L2	1.5	7.50%	61		94	10 min	35	94	30 sec	61	30 sec	72	30 sec	72	10 min	-5	9	7		3	3B
	3	3		L2	2	0%	61		94	10 min	35	94	30 sec	61	30 sec	72	30 sec	72	10 min	-5	3	3		3	3B
	17	13		L4	1.5	7.50%	62		94	10 min	35	94	20 sec	62	30 sec	72	45 sec	72	10 min	-5	17	13		4	4A
	18	14		L4	1.5	7.50%	62		94	10 min	35	94	20 sec	62	30 sec	72	45 sec	72	10 min	-5	18	14		4	4A
	13	11	A	L3	1.5	0	70		94	10 min	35	94	30 sec	70	30 sec	72	30 sec	72	10 min	-5	13	11	A	5	5A
	14		B	L3	1.5	0	70		94	10 min	35	94	30 sec	70	30 sec	72	30 sec	72	10 min	-5	14		B	5	5A
	19	15	A	L4	1.5	0	62		94	10 min	35	94	20 sec	62	20 sec	72	45 sec	72	5 min	10^{-4}	19	15	A	6	6A
	20		B	L4	1.5	0	62		94	10 min	35	94	20 sec	62	20 sec	72	45 sec	72	5 min	10^{-4}	20		B	6	6A
	21		C	L4	1.5	0	62		94	10 min	35	94	20 sec	62	20 sec	72	45 sec	72	5 min	10^{-4}	21		C	6	6A
	22		D	L4	1.5	0	62		94	10 min	35	94	20 sec	62	20 sec	72	45 sec	72	5 min	10^{-4}	22		D	6	6A
	23		E	L4	1.5	0	62		94	10 min	35	94	20 sec	62	20 sec	72	45 sec	72	5 min	10^{-4}	23		E	6	6A
	24		F	L4	1.5	0	62		94	10 min	35	94	20 sec	62	20 sec	72	45 sec	72	5 min	10^{-4}	24		F	6	6A
	25		G	L4	1.5	0	62		94	10 min	35	94	20 sec	62	20 sec	72	45 sec	72	5 min	10^{-4}	25		G	6	6B
	26		H	L4	1.5	0	62		94	10 min	35	94	20 sec	62	20 sec	72	45 sec	72	5 min	10^{-4}	26		H	6	6B
	27		I	L4	1.5	0	62		94	10 min	35	94	20 sec	62	20 sec	72	45 sec	72	5 min	10^{-4}	27		I	6	6B
	28		J	L4	1.5	0	62		94	10 min	35	94	20 sec	62	20 sec	72	45 sec	72	5 min	10^{-4}	28		J	6	6B
	29		K	L4	1.5	0	62		94	10 min	35	94	20 sec	62	20 sec	72	45 sec	72	5 min	10^{-4}	29		K	6	6B
	32		N	L5	1.5	2.50%	62		94	10 min	35	94	20 sec	62	20 sec	72	45 sec	72	5 min	10^{-4}	32		N	6	6B
	31		M	Genomi	1.5	0	68		94	10 min	35	94	20 sec	68	20 sec	72	45 sec	72	5 min	100 ng	31		M	7	7A
	30		L	L4	1.5	2.50%	68		94	10 min	35	94	20 sec	68	20 sec	72	45 sec	72	5 min	10^{-4}	30		L	7	7A
	33	16		L5	1.5	0	60		94	10 min	35	94	20 sec	60	30 sec	60	40 sec	72	10 min	-4	33	16		8	8A
	40	23	A	L7	1.5	0	62		94	10 min	35	94	20 sec	62	30 sec	72	40 sec	72	10 min	-4	40	23	A	9	9A
	41		B	L7	1.5	0	62		94	10 min	35	94	20 sec	62	30 sec	72	40 sec	72	10 min	-4	41		B	9	9A
	42		C	L7	1.5	0	62		94	10 min	35	94	20 sec	62	30 sec	72	40 sec	72	10 min	-4	42		C	9	9A
	43	24		L7	1.5	0	62		94	10 min	35	94	20 sec	62	30 sec	72	40 sec	72	10 min	-4	43	24		9	9A
	44	25		L7	1.5	0	62		94	10 min	35	94	20 sec	62	30 sec	72	40 sec	72	10 min	-4	44	25		9	9A
	45	26		L7	1.5	0	62		94	10 min	35	94	20 sec	62	30 sec	72	40 sec	72	10 min	-4	45	26		9	9A
	46	27		L7	1.5	0	62		94	10 min	35	94	20 sec	62	30 sec	72	40 sec	72	10 min	-4	46	27		9	9A
	35	18		L5	1.5	0	64		94	10 min	35	94	20 sec	64	30 sec	64	40 sec	72	10 min	-4	35	18		10	10A
	37	20		L5	1.5	0	64		94	10 min	35	94	20 sec	64	30 sec	64	40 sec	72	10 min	-4	37	20		10	10A
	47	28		L7	1.5	0	64		94	10 min	35	94	20 sec	64	30 sec	64	40 sec	72	10 min	-4	47	28		10	10A
	48	29		L8	1.5	0	64		94	10 min	35	94	20 sec	64	30 sec	64	40 sec	72	10 min	-4	48	29		10	10A
	39	22		L6	1.5	0	64		94	10 min	35	94	20 sec	64	30 sec	72	40 sec	72	10 min	-4	39	22		10	10A
	34	17		L5	1.5	0	67		94	10 min	35	94	20 sec	67	30 sec	67	40 sec	72	10 min	-4	34	17		11	11A
	36	19		L5	1.5	0	67		94	10 min	35	94	20 sec	67	30 sec	67	40 sec	72	10 min	-4	36	19		11	11A
	38	21		L5	1.5	0	69		94	10 min	35	94	20 sec	69	30 sec	72	40 sec	72	10 min	-4	38	21		12	12A
	49	30		L8	1.5	0	72		94	10 min	35	94	20 sec	72	30 sec	72	40 sec	72	10 min	-4	49	30		13	13A
	53	33		L8	1.5	7.50%	58		95	10 min	35	94	20 sec	58	30 sec	72	45 sec	72	10 min	:10 -5	53	33		14	14A
	54	34		L8	1.5	7.50%	58		95	10 min	35	94	20 sec	58	30 sec	72	45 sec	72	10 min	:10 -4	54	34		14	14A
	54	35			1.5	7.50%	58		95	10 min	35	94	20 sec	58	30 sec	72	45 sec	72	10 min	NA	54	35		14	14A
	61	42			1.5	7.50%	58		95	10 min	35	94	20 sec	58	30 sec	72	45 sec	72	10 min	NA	61	42		14	14A
	59	40			1.5		58		95	10 min	35	94	20 sec	58	30 sec	72	45 sec	72	10 min	NA	59	40		14	14A
	64	45			1.5		58		95	10 min	35	94	20 sec	58	30 sec	72	45 sec	72	10 min	NA	64	45		14	14A
	62	43			1	7.50%	62		95	10 min	35	94	20 sec	62	30 sec	72	45 sec	72	10 min	NA	62	43		15	15A
	56	37			1.5	7.50%	62		95	10 min	35	94	20 sec	62	30 sec	72	45 sec	72	10 min	NA	56	37		15	15A
	58	39			1.5	7.50%	62		95	10 min	35	94	20 sec	62	30 sec	72	45 sec	72	10 min	NA	58	39		15	15A
	60	41			1.5	7.50%	62		95	10 min	35	94	20 sec	62	30 sec	72	45 sec	72	10 min	NA	60	41		15	15A
	63	44			1.5	7.50%	62		95	10 min	35	94	20 sec	62	30 sec	72	45 sec	72	10 min	NA	63	44		15	15A
	65	46			1.5	7.50%	62		95	10 min	35	94	20 sec	62	30 sec	72	45 sec	72	10 min	NA	65	46		15	15B
	51	31		L8	1.5		62		95	10 min	35	94	20 sec	62	30 sec	72	45 sec	72	10 min	:10 -5	51	31		15	15B
	52	32		L8	1.5		62		95	10 min	35	94	20 sec	62	30 sec	72	45 sec	72	10 min	:10 -5	52	32		15	15B
	55	36			1.5		62		95	10 min	35	94	20 sec	62	30 sec	72	45 sec	72	10 min	NA	55	36		15	15B
	57	38			1.5		62		95	10 min	35	94	20 sec	62	30 sec	72	45 sec	72	10 min	NA	57	38		15	15B

FIG 12 Cont.

Verified By		Exon	Ampli-con	Long Range PCR	Mg	DMSO	Anneal Temp		Initial Denatur Temp	Initial Denature Time	# Cycles	Cycle Denatur Temp	Cycle Denatur Time	Anneal Temp	Anneal Time	Ext Temp	Ext Time	Final Ext Temp	Final Ext Time	LR Dilution		Exon	Ampli-con		
	66	1	A		1.1	5%	72		95	10 min	35	95	45 sec	72	2min	72	1 min	72	10 min	NA	66	1	A	16	16A
	68		C		1.1	5%	72		95	10 min	35	95	45 sec	72	2min	72	1 min	72	10 min	NA	68		C	16	16A
	67		B		1.1	7.50%	74		95	10 min	35	95	45 sec	74	2min	74	1 min	74	10 min	NA	67		B	17	17A
	73	6			2	0	50		95	10 min	35	92	40 sec	50	40 sec	72	40 sec	72	10 min	NA	73	6		18	18A
	75	8			2	0	50		95	10 min	35	92	40 sec	50	40 sec	72	40 sec	72	10 min	NA	75	8		18	18A
	76	9			2	0	50		95	10 min	35	92	40 sec	50	40 sec	72	40 sec	72	10 min	NA	76	9		18	18A
	79	12			2	0	50		95	10 min	35	92	40 sec	50	40 sec	72	40 sec	72	10 min	NA	79	12		18	18A
	70	3			1.5	5%	55		95	10 min	35	92	40 sec	55	40 sec	72	40 sec	72	10 min	NA	70	3		19	19A
	71	4			1.5	5%	55		95	10 min	35	92	40 sec	55	40 sec	72	40 sec	72	10 min	NA	71	4		19	19A
	72	5			1.5	5%	55		95	10 min	35	92	40 sec	55	40 sec	72	40 sec	72	10 min	NA	72	5		19	19A
	74	7			1.5	5%	55		95	10 min	35	92	40 sec	55	40 sec	72	40 sec	72	10 min	NA	74	7		19	19A
	77	10			1.5	5%	55		95	10 min	35	92	40 sec	55	40 sec	72	40 sec	72	10 min	NA	77	10		19	19A
	78	11			1.5	5%	55		95	10 min	35	92	40 sec	55	40 sec	72	40 sec	72	10 min	NA	78	11		19	19A
	80	13			1.5	5%	55		95	10 min	35	92	40 sec	55	40 sec	72	40 sec	72	10 min	NA	80	13		19	19A
	82	15			1.5	5%	55		95	10 min	35	92	40 sec	55	40 sec	72	40 sec	72	10 min	NA	82	15		19	19A
	69	2			2	0	58		95	10 min	35	92	40 sec	58	40 sec	72	40 sec	72	10 min	NA	69	2		20	20A
	81	14			2	0	62		95	10 min	35	92	40 sec	62	40 sec	72	40 sec	72	10 min	NA	81	14		21	21A

FIG 13


Genomic DNA Extraction From Whole Blood with Puregene Kit
8 PKD1-Specific Long Range PCR Reactions
31 PCR Reactions for the PKD1 Unique Region and all of PKD2
Agarose Gel
52 Nested PCRs
166 DHPLC Analyses - 1-3 Temperatures/Amplicon
DHPLC Positive
DHPLC Negative Fragment "Normal"
Sequencing
DNA Variants Identified & Interpreted
Report Listing All DNA Variants and Interpretations
Genetic Test Counselor Contacts Physician